

Wood (John)



Sir George. Sugent.



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A
SERIES OF PLANS
FOR
COTTAGES OR HABITATIONS
OF THE
LABOURER,

EITHER IN
HUSBANDRY, OR THE MECHANIC ARTS,
ADAPTED AS WELL TO TOWNS AS TO THE COUNTRY.

ENGRAVED ON THIRTY PLATES.

TO WHICH IS ADDED

An Introduction, containing many useful Observations on this Class of Building; tending to the Comfort of the Poor and Advantage of the Builder: with Calculations of Expences.

BY THE LATE

MR. J. WOOD, OF BATH, Architect.

A NEW EDITION,
CORRECTED TO THE PRESENT TIME.

LONDON:

PRINTED FOR J. TAYLOR, AT THE ARCHITECTURAL LIBRARY, No. 59, HIGH HOLBORN.

1806.

PRINTED BY T. BENSLEY, BOLT COURT, FLEET STREET, LONDON.

INTRODUCTION.

SOME time back when in company with several gentlemen of landed property, the conversation turned on the ruinous state of the cottages of this kingdom; it was observed that these habitations of that useful and necessary rank of men, the LABOURERS, were become for the most part offensive both to decency and humanity; that the state of them and how far they might be rendered more comfortable to the poor inhabitants, was a matter worthy the attention of every man of property not only in the country, but in large villages, in towns, and in cities.

Reflecting on this conversation; recollecting that no architect had, as yet, thought it worth his while to offer to the publick any well constructed plans for cottages; considering the regular gradation between the plan of the most simple hut and that of the most superb palace; that a palace is nothing more than a cottage IMPROVED; and that the plan of the latter is the basis as it were of plans for the former; prompted also by humanity to make my talent useful to the poorest of my fellow citizens; I resolved on turning my thoughts towards an object of such importance to the publick as plans for cottages appeared to me to be. But in order to make myself master of the subject, it was necessary for me to feel as the cottager himself; for I have always

held it as a maxim, and however quaint the thought may appear, yet it is altogether true, that no architect can form a convenient plan, unless he ideally places himself in the situation of the person for whom he designs: I say it was necessary for me to feel as the cottager himself; and for that end to visit him; to enquire after the conveniencies he wanted, and into the inconveniencies he laboured under.

I did so; and the further I examined the wider was the field of study that opened itself to my view. The necessity there was of improving the dwellings of the poor labourer became continually more and more apparent. I found it necessary not to confine myself to the habitations of the labourer in husbandry only, but to consider those of the workmen and artificers in the cloathing and other manufacturing counties. I began to be dispirited; to doubt my abilities; and to wish that a man of greater eminence than myself had undertaken so useful a work; a work not unworthy the attention of the most experienced architect. However I determined to proceed, flattering myself, that although I should not produce a perfect work, yet, at the least, I should lead the way to some greater improvement.

The greatest part of the cottages that fell

within my observation, I found to be that-
tered, dirty, inconvenient, miserable hovels,
scarcely affording a shelter for beasts of the
forest; much less were they proper habita-
tions for the human species; nay it is impos-
sible to describe the miserable condition of
the poor cottager, of which I was too often
the melancholy spectator.

Of the better kind of these cottages the
poor inhabitants complained,

That they were *wet and damp*, from their
being built against banks, or in low *dreary*
spots; and from the floors of them being
sunk, as it were, into the ground, having
one step ^a down into them and sometimes
two.

That they were *cold and cheerless*, from
the entrances not being screened; from the
awkward situation of the door, windows, and
chimney; and from the thinness of the ex-
ternal ^b walls.

That they were *inconvenient* from their

want of room; and from the steepness, strait-
ness and bad ^c situation of the stairs, where
there was an upper floor.

That they were *unhealthy* from the low-
ness and closeness of the rooms; from their
facing mostly the north and west; and from
the chambers being crowded into the roof,
where having nothing to defend them from
the weather but the rafters and bare roof
without ceiling, they were stifling hot in the
summer, and freezing cold in the winter; the
triangular shape of the roof rendered them
also inconvenient; the dormer windows ^d be-
ing continually out of repair, and the dormers
leaky, added greatly to the dampness, un-
healthiness, and decay of the cottage.

Now to obviate these complaints, and to
remove these inconveniencies, I shall lay down
the SEVEN following principles, on which all
cottages should be built.

First, The cottage should be DRY and
HEALTHY; this is effected by keeping the

^a This error is not confined to cottages only, but it is to be observed in most houses in the country; as well in those erected years ago, as in those, strange to say it, built in modern times.

^b In my neighbourhood they build the external walls, both of cottages and houses, with freestone, barely six inches thick; and in the countries, where brick is made use of, and particularly where the brick is rather dear, I observed they generally made the external walls nine inches, or one brick thick. In the first case I have been often an eye witness of the rain driving, not only through the joints, but even the stone itself; and in the winter, I have seen the inside of these walls covered with ice from the roof to the foundation. In the second case, the same circumstances attend the nine inch walls, as I was informed by the several inhabitants.

^c The situation of the stairs being generally at the side of the chimney, I need not expatiate on the inconveniency thereby produced; and to the old, and infirm, the steepness or straitness is very troublesome, and dangerous.

^d Dormer, or dormant windows are such as are commonly placed in the roof; the rafter, on which the cheek or side of the window rests, is called the dormant rafter; and it is easily conceived, how difficult it must be to make the joining betwixt the upright cheek and the tile, or other covering, so close as to prevent leakage, which must of course rot the dormant rafter, and bring on in a short space of time the decay of the roof.

floor *sixteen* or *eighteen* inches ^e above the natural ground; by building it clear of banks, on an open spot of ground, that has a declivity, or fall, from the building; by having the rooms not less than *eight* feet high, an height that will keep them airy and healthy; and by avoiding having chambers in the roof.

Secondly, WARM, CHEERFUL, and COMFORTABLE. In order to attain these points the walls should be of a sufficient thickness (if of stone, not less than *sixteen* inches; if of brick, at least a brick and half;) to keep out the cold of the winter, and the excessive heat of the summer. The entrance should be ^f skreened, that the room, on opening the door, may not be exposed to the open air; the rooms should receive the light from the east, or the ^g south, or from any point betwixt the east and the south; for if they receive their light from the north, they will be cold and cheerless; if from the west, they will be so heated by the summer's afternoon sun, as

to become comfortless to the poor labourer after an hard day's work; whereas on the contrary, receiving the light from the east or the south, they will be always warm and cheerful; so like the feelings of men in an higher sphere are those of the poor cottager, that if his habitation be warm, cheerful, and comfortable, he will return to it with gladness, and abide in it with pleasure.

Thirdly, CONVENIENT, by having a porch, or shed, to skreen the entrance and to hold the labourers tools; by having a shed to serve as a pantry, and store-place for fuel; by having a privy ^h for cleanliness and decency's sake; by a proper disposition of the windows doors, and chimneys; by having the stairs, where there is an upper floor, not less than *three feet* wide; the rise, or height not more than *eight inches*, and the tread, or breadth not less than *nine inches*; and lastly by proportioning the size of the cottage to the family that is to inhabit it; there should be

^e For want of this precaution, I have always observed, that in wet summers, and throughout the whole winter, the walls sucked up (if I may be allowed the expression) the water, and are damp for at least a yard high; and this happens not only where the walls are thin, but even in buildings where they are thick.

^f This circumstance must be particularly attended to, in those rooms where there is intended to be a bed.

^g At first view this nicety may appear trifling, but on mature deliberation will prove of very material consequence.

^h This convenience will answer many good ends, but in nothing more than being an *introduction to cleanliness*. In the account of the voyage to the South Sea, published by Dr. Hawksworth, speaking of the inhabitants of New Zealand is the following passage. "In personal delicacy they were not equal to our friends at Otaheite, for the coldness of the climate did not so often invite them to bathe, but we saw among them one instance of cleanliness, in which they excelled them, and of which perhaps there is no example in any other Indian Nation; every house or every cluster of three or four houses was furnished with a *privy*, so that the ground was every where clean." What a reflection is this on the greatest part of the inhabitants of Britain to be exceeded in neatness in any one point by that barbarous race of people the New Zealanders? I could mention many large and opulent towns, particularly on the sea coasts, nay some large cities, where there is scarcely such a convenience in the whole place, for want of which, the streets are perfect jakes; to the annoyance of both Inhabitants and Strangers.

one lodging room for the parents, another for the female, and a third for the male children; it is melancholy to see a man and his wife, and sometimes half a dozen children crowded together in the same room, nay often in the same bed; the horror is still heightened, and the inconveniency increased at the time when the woman is in child-bed, or in case of illness, or of death; indeed whilst the children are young, under nine years of age, there is not that offence to decency if they sleep in the same room with their parents, or if the boys and girls sleep together, but after that age they should be kept ¹ apart.

Fourthly, Cottages should not be more than TWELVE feet wide in the clear ^k being the greatest width that it would be prudent to venture the rafters of the roof with the collar pieces ¹ only, without danger of spreading the walls; and by using collar pieces, there can be fifteen inches in height of the

roof thrown into the upper chambers, which will render dormer windows ^m useless. The collar pieces will serve for ceiling joists; and the small portion of the roof, that is thrown into the room, will not create those inconveniencies that attend rooms, which are totally in the roof.

Fifthly, Cottages should be always built in PAIRS; either at a little distance the one from the other; or close adjoining so as to appear as one building, that the inhabitants may be of assistance to each other in case of sickness or any other accident.

Sixthly, As a piece of OECONOMY, cottages should be built strong, and with the best of materials, and these materials well put together; the mortar must be well tempered and mixt, and lime not spared; hollow walls bring on decay, and harbour vermin; and bad sappy timber soon reduces the cottage to a ruinous state; although I would by no means

¹ I am aware that the statute of the 5th of Elizabeth, concerning the apprenticing poor children, and compelling adults to go out to service, will be here objected to me, but the objection soon vanishes when we consider; *first*, That it may be policy, in many cases, to let the children live at home with their parents 'till they are grown up, particularly in the manufacturing Countries; where the trade of the Father will be more carefully taught the children, whose earnings often, nay generally, contribute to the better maintenance of the Family. *Secondly*, The power given to the parish officers by that act is very much circumscribed, and is confined merely to their own parishes; indeed they may, if they can find proper masters in other parishes, bind out their orphan poor, and the children of such poor as are willing to part with them; but this must be done by the consent of the magistrates, who should be very careful how they take the burthen off from one parish, and lay it on another.

^k Twelve feet is a width sufficient for a dwelling that is to be deemed a cottage; if it be wider, it approaches too near to what I would call a house for a superior tradesman; besides, it would require longer and stronger timbers, girders to the floors and roof, and consequently greatly enhance the expence; a circumstance one would wish in all buildings to avoid.

¹ A collar piece, is that piece of wood which ties the rafters together at some height above the wall plate, as is expressed in Fig. 1. in the first miscellaneous plate, by the letter A. and is generally dove-tailed into the rafters.

^m Because the room being *six feet ten inches* high to the top of the wall plate, there will be sufficient height to make a window in the side wall under the plate.

have these cottages fine, yet I recommend regularity, which is beauty; regularity will render them ornaments to the country, instead of their being as at present disagreeable objects.

Seventhly, A PIECE OF GROUND for a garden should be allotted to every cottage ^a proportionable to its size; the cottage should be built in the vicinity of a spring of water, a circumstance to be much attended to; and if there be no spring, let there be a well.

On the foregoing SEVEN principles I recommend all cottages to be built; ^o on them I have formed the following plans, which I divide into four classes or degrees. *First*, cottages with ONE room; *Secondly*, cottages with TWO rooms; *Thirdly*, cottages with THREE rooms; and *Fourthly*, cottages with FOUR rooms, of each of which in order.

But before I proceed, it will be proper to

inform the reader, that the following plans are calculated for the neighbourhood to the *eastward* of Bath; I say to the *eastward*, because a little way either to the east, or to the west, makes a sensible difference in the expence of the carriage of stone.

It is very remarkable, that if a line be drawn from north to south through the city of Bath, leaving the hot springs to the eastward, that all the stone immediately to the eastward ^p of that line is a fine freestone, and continues such for about four miles to the east, when it changes to a shelly tile, which runs about six miles further eastward, and then becomes a chalk in the Wiltshire hills. Immediately on the west of the above described line, the stone is hard, called the blue and white lyas; both will burn into lime, but the blue is the best. This lime is very strong, of a brown colour, (or what the workmen term

^a This will hold good in the country where ground is not of so great a value, but in towns we must be content with a small outlet behind. The advantage of a garden to cottages has been much insisted upon by all late writers on this subject.

^o I cannot more properly than in this place observe, that near Dorchester, in Dorsetshire, there has been lately erected a row of four cottages for the accommodation of an adjoining Farm, in which there has not been the least attention paid either to the principles of sound building, or to decency, or conveniency. The entrances are from the west, and not screened; the windows are to the same point; the cottages is *seventeen feet and an half* wide in the clear; and the whole triangular space of the roof occupied as a chamber. The consequence is, that the walls, which have not been built more than *three* years, are already considerably spread, and must in a short time fall down; the poor inhabitants told me that they could scarcely support the heat of these rooms in the summer, and that they were quite frozen in the winter. The indecency of one chamber for a large Family, is here very striking; and what adds to the shamefulness of it, was the partitions between house and house being nothing more than thin, rough boards not jointed; and yet the rent, paid for each cottage, is *fifty two shillings* a year. It is a pity that gentlemen, who build cottages for the accommodation of their labourers, do not study stability for their own sakes, and conveniency and decency for the sake of the inhabitants; for, believe me, the poor man wishes for conveniency, but knows not how to remedy himself; and would be decent, was it in his power.

^p If this line be continued northward forty miles, even to Gloucester, the same circumstance of having freestone to the east will still attend it; and if continued southward about twenty miles, through Shepton-Mallet, 'twill be the same also, except about two miles over Mendip, where the hard lime-stone rock runs a few miles to the east to Vobster, in the parish of Mells, and is there lost.

it, *casts* brown) and sets or grows hard ^a under water. This lyas stone continues for eight miles westward, and then changes into a gritty, thin-bedded, hard stone, called pennant, with which the foot pavements of the streets ^r are laid; this pennant stone runs four miles further westward to the city of Bristol, and then becomes a very hard lime-stone, which casts white, but will not set in water. Thus at Bath we have stone for tile; a freestone, perhaps the finest in the kingdom; two kinds of lime-stone; and an excellent stone for paving, all within an easy carriage of the city.

The freestone is sawed out with a common hand-saw into what is called *perpendicular*, ^s that is, stone of four, six, eight or ten inches thick, and of such height and length as the rock will admit of; but generally into, what is called, ten, twelve, or fourteen inch courses, and the stone from two feet and an half, to four feet and an half in length. A wall well built with six inch ashlar is much stronger than a brick wall of nine inches thick; but if such six inch walls be the external ones of any dwelling, the rooms within, as I observed before, will be sultry hot in the summer, and freezing cold in the winter; however, such thin ashlar makes most excellent inside partitions.

Now as there is so great a difference in the building materials, within so short a space as ten miles either to the east or to the west of one town, how much must the materials of one country vary from those of another? We may therefore justly conclude that the prices of building must vary in every country; and yet I have found by experience, that the difference on *the whole* is very little, throughout the kingdom, if the builder is content to make use of the *local* materials of the country where he builds.

It has been observed, that the estimates for these cottages were made for the neighbourhood of Bath; I shall therefore now proceed to describe the method of building, and the materials made use of in that part of the country; and also to shew the prices there given not only for materials, but for workmanship, both by the yard, and by the day: from which premises, I shall lay down such a mode of calculation, as will put it in the power of any person, with very little trouble, to ascertain the value of the same kind of work in any other country. As there are several branches of the building business employed in the erection of an humble cottage, I will consider and explain each separately.

^a This lime with coal ashes, mix'd in the manner prescribed by Mr. Lorient, will make the hardest cement I ever saw, as I have found by various experiments; it will hold water, resist frost, harden in a few hours in water, and will bear a very good polish.

^r The coach or carriage ways are laid, or pitched with blue lyas, which wears very well, though it will not bear the frost.

^s A provincial term; a corruption I imagine of perpendicular, as the stone in this form is placed on the edge, and must of course be set very plumb, or perpendicular; and the edge or bed truly square with the upright surface.

MASONS' WORK.

The materials made use of in this branch are *rough walling stone* and *ashlar*. The foundation shall be *two feet* thick, and *two feet* high to the level of the floor of the room; the walls above that level to be *twenty* inches thick; the walls of the sheds to be built with *four inch*^t ashlar; the quoins, the jaumbs and heads of the chimneys, doors and windows^u to be of ashlar; as also the fills of the windows, the summer-stones^w the tabling; the tuns, or that part of the chimney that rises above the roof, should be of the same material.

A waggon load of stones, which at the quarry costs *one shilling and four-pence*, and the carriage of which will be *five shillings*, is sufficient to build a *perch* of walling consisting of *thirty* cubical feet.

Two rough masons, ^x each of whose wages are *three shillings and six-pence* for the day, and one mason's labourer at the daily wages

of *two shillings and four-pence*, will build about *four* perch in a day, including the mixing of the mortar; thus the cost of *one* perch is *two shillings and four-pence*, but an allowance of *one penny* is to be made in every perch for the trouble of erecting and taking down the scaffolds, which will make the value of a perch *two shillings and five-pence*.

Twelve bushels of lime at *six-pence* the bushel; and *one* cart load of mortar dirt, or sand, at *eighteen-pence* the load (the whole making *seven shillings and six pence*) will be sufficient for *three perch and an half* of work, that is, *two shillings and two-pence* the perch.

Four inch ashlar delivered on the spot is worth *three-pence three farthings*, and the workmanship in setting the same, and afterwards cleaning it down, is *one penny halfpenny* for every foot superficial, to be measured on one side only; the mortar with which such ashlar is set, is lime and the sand of the freestone, but the quantity is so small, that the value of what is used in setting an *hundred feet* of

^t In countries where there is no such ashlar, those walls must be built as thin as possible with the stone of the country. And where bricks are made use of, a wall of the thickness of half a brick will answer the purpose very well.

^u This will not increase the expence; because the labour saved in hewing the quoins, jaumbs, &c. in the rough stones, will amply pay for the extraordinary expence of the freestone, made use of in those several articles.

^w In the first miscellaneous plate, *Fig. 2.* A, is the *summer stone*; B, B, the *barge stones*; C, the *tabling*, the first piece of which is worked in the solid of the summer stone, and so becomes an abutment, as at D, and support to the rest of the tabling. The tabling is *three* inches thick, and *nine* inches broad; *two* inches project over the gable end, and as the barge stones are *four* inches thick, there are *three* inches of it to project over the covering, which makes the neatest finish that can be imagined. The inclined plane of the gable end is called the *barge*. In walls where barge stones are not made use of, their place is supplied with a rafter, called the *barge rafter*; and this supports the outward course of tile, called the *barge course*.

^x The mason that sets the stone is called a *rough mason*; the man that works the freestone is called a *free mason*; a mason's labourer has always greater wages than a common labourer, as it requires skill and practice to attend masons.

four inch ashlar, will scarcely amount to *nine-pence*.

The price, therefore, of a perch of walling will stand thus,

	s.	d.
One load of stone at the quarry . . .	1	4
Carriage of one load	5	0
Expence of mortar	2	2
Workmanship	2	5
	<hr/>	
	10	11 ^y

Now as the same quantity of materials will do the same quantity of work in every country where stone is made use of, the above example will easily ascertain the value of a perch of wall in any place whatsoever, in proportion to the price of materials, and in proportion to the wages of the mason and labourer. In those counties where chalk and flint, or flint alone is made use of, the case will be very near the same. And there will not be a very great difference even where they build mud-walls. I have seen those kind of walls, particularly in Cornwall, very strong and good; but if the builders would, as they lay on wet dirt, straw, and small stones, throw in a small quantity of quick lime finely pounded, it would greatly strengthen the work; and I advise them not to be sparing of bond-timber, if they desire their buildings to be durable.

BRICKLAYERS' WORK.

This work is performed by the *rod*, containing *two hundred and seventy-two feet* superficial of wall *a brick and an half* thick, to which standard thickness all the walls are to be reduced. *Four thousand and five hundred bricks* will do a rod of work; the mortar for that quantity of work will be *thirty* bushels of lime, and two *cart* loads of sand; the mixing of the mortar will employ a labourer *three quarters* of a day; and a bricklayer and his labourer will build a rod in *five* days.

The price therefore of a rod of brick work in *London* and its neighbourhood will be as follows.

	l.	s.	d.
4500 of bricks at 42 s. the thousand, } delivered on the spot }	9	9	0
30 bushels of lime at 6d. the bushel, } delivered on the spot }	0	15	0
2 cart loads of sand at 3s. the load, } delivered on the spot }	0	6	0
$\frac{3}{4}$ day a labourer mixing the mortar } at 3s. }	0	2	3
5 days a bricklayer at 4s. 6d. . . .	1	2	6
5 days a labourer at 3s.	0	15	0
	<hr/>		
	12	9	9

In countries distant from *London*, where labour and materials are cheaper, the price will of course be less; for instance, at *Stockport*, in *Cheshire*, the price of a rod of brick work will be as follows.

^y The above price of *ten shillings and eleven pence* for the perch is the cost that every master-builder will be at, out of his own pocket, exclusive of his own time, of the wear and tear of scaffolding, interest of money, and a reasonable profit.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
4500 bricks at 3 <i>s.</i> the thousand .	7	17	6
30 bushels of lime at 6 <i>d.</i> the bushel .	0	15	0
2 cart loads of sand at 1 <i>s.</i> the load .	0	2	0
$\frac{3}{4}$ day a man to mix the mortar at 2 <i>s.</i>	0	1	6
5 days a bricklayer at 3 <i>s.</i> the day .	0	15	0
5 days a labourer at 2 <i>s.</i>	0	10	0
	10	1	0

It must here again be observed, that these prices are exclusive of materials for scaffolding, and also of the reasonable profit that should be allowed to a master bricklayer.

IRONMONGERY.

I mention this article before the carpenters work, because there are many articles of the ironmongery goods made use of in the carpenters branch, and estimated with it; the following are the chief; *four, six, eight, ten, twelve*, and *twenty-penny* nails; *six* inch spikes at *two-pence* a piece; *eight, ten*, and *twelve-penny* flooring brads; *three, four*, and *six-penny* clout nails; *six* inch H-L hinges, at *one shilling* and *two-pence* the pair; *ten* inch side hinges at *two shillings* and *two-pence* a pair; casement stays at *six-pence* the pair; casement fastenings at *four-pence* the pair; stock locks at *two shillings* apiece, and casement squares at *one shilling* the set.

CARPENTERS' WORK.

The wages of a carpenter are *four shillings* a day, the price of fir timber *three shillings*, and of elm *two shillings* and *six-pence* the foot cubical; fir board, *one inch* thick, *two pounds*, and elm board of the same thickness, *one*

pound twelve shillings the hundred feet; that is, the former *five-pence*, the latter *four-pence* the foot. I must observe, that although fir is dearer than elm by the foot, yet it is cheaper to use the former, as there is so much waste, occasioned by the elm being in general what the workmen call very *waney*. Sawing is done by the hundred feet, from *three shillings* and *six-pence* to *four shillings* the hundred; deal quarter *four* inches by *three* is worth *three-pence* the foot running.

The roofs of cottages I advise to be framed with rafters *two inches* thick; *six inches* broad at the foot, B, (*in fig. 1. first miscell. Plate*) and *five inches* broad at the point, C; tied together by the collar piece, A, *five inches* broad, and *two* thick; *dove-tailed* at each end, as at D, D, into the rafters; *halved* together at the point, C, there fastened with *two* tenpenny nails; and *abutted* with a *bird's mouth*, as at E, E, on the wall plate, into which they are to be nailed, at the foot, with a *double ten-penny* nail; the wall plate to be *five inches* broad and *two* thick. In order to keep the roof steady, put a ridge piece of inch board *six inches* broad, notched on the upper edge, about *two inches* deep, to receive and clip the rafters at the internal angle of the point, and let it be drove up to its place by a collar of inch board, *six inches* broad, which fasten to the rafters with four *tenpenny* nails, as expressed by *Fig. 3*, in the same plate, where A is the ridge piece, and B, B, the small collar; *Fig. 4*, represents the same ridge piece, lengthways, with the notches as above described.

The pitch of the roof to be as in *Fig. 5*, in the same plate, suppose a triangle *A B C* to represent the roof, where *A C* is the horizontal length of the base, or distance from one foot of the rafter to the other, bisect the line *A C* at *D*; on the point *D* erect the perpendicular *D E*; divide *A D*, or *C D*, into four equal parts, then take three of these parts and set them off on the line *D E* to the point *B*; then will *A B*, or *C B*, be the length of the rafter, and be equal to five of such parts as *A D* is divided into, by the *forty-seventh* proposition of the first book of Euclid. For *A D*, the base, being *four*, its square will be *sixteen*; and *D B*, the perpendicular, being *three*, its square, will be *nine*; *nine* and *sixteen* make *twenty-five*, the square root of which is *five*, equal to the length of the rafter, or hypotenuse *A B*. If workmen would well consider this pitch, it would save a deal of timber, time, and waste. And I can assure them, from long experience, that it is sufficiently steep for any materials that are made use of in this kingdom for covering of buildings.

Having mentioned above, that the rafters of the roof must be abutted on the wall plate with a *bird's-mouth*, as at *E E*, referring to the first Figure in the first miscellaneous plate, and as the scale to which that figure is drawn is but small, and probably what I call a *bird's-mouth* may not be sufficiently understood, it is expressed in a larger scale by the sixth figure in the same plate, where *A* is the wall plate; *B* the rafter; and *c d c* the *bird's-*

mouth. I must observe also, that the collar piece is directed to be *dove-tailed* at each end into the rafters; it must be further directed to be kept in its place by *four* hold-fasts or stay-hooks, such as are used by plumbers, of about the value of a *penny* each, driven through the rafters, and clinched, at the places marked with the black dots on the rafters in *the first figure*; these will keep the collar piece in its place, and prevent its starting, without destroying the operation of the *dove-tail*, which would certainly be the case if the ends of the collar piece were to be nailed to the rafters.

Wherever the roof is hip'd there must be an angular brace of quarter, dove-tailed into the wall plate, as at *A A*, *Fig. 7*; the mortice to be *one inch* deep, and the under-shoulder *half an inch*, so that the upper side will be *one inch and an half* above the wall plate; then let the diagonal piece *C B*, *six inches* broad and *one and an half* thick, be dove-tailed, at the end *B*, into the brace *A A*, its whole thickness deep, then will the upper side be flush with the upper side of the brace, and its under side at *C*, be flat on the wall plate. This diagonal piece is the abutment to the hip rafter.

A square of such roof, including the wall plate, will contain *thirteen feet* of timber; *one hundred* feet of sawing; and *eight* feet of inch board; it will also require *forty* tenpenny, and *twelve* twenty penny nails; and two men will frame and put up two squares in a day and an half. The price

therefore of a square of such roofing will stand thus,

	<i>l.</i>	<i>s.</i>	<i>d.</i>
13 feet of timber at 3 <i>s.</i>	1	19	0
8 feet of board at 5 <i>d.</i>	0	3	4
100 feet of sawing	0	3	6
Nails, &c.	0	1	6
Labour	0	6	0
	<hr/>		
	2	13	4

The flooring I advise to be thus, the joists to be *six inches* by *four*, and to lie from wall to wall the breadth of the building; two half joists to be placed against each end, and the remaining space so divided, as to be about *three feet* from middle to middle of the joists, as described by *Fig. 8, in the first miscellaneous plate*, where A A are the half joists, B B the whole joists, and C C the trimmers on each side of the chimney; then the flooring boards to be *one inch and a quarter* thick, grooved and tongued,² and planed on both sides. The joists also should be planed and tried up; these joists will be worth *six-pence* the foot for the stuff; and the planing, trying up, and laying, *two-pence* the foot running; a square will require *thirty-three* such feet; again, a man can plane, groove, tongue, and lay about *half* a square of flooring in a day, which amounts to *eight shillings* the square; board, *one inch and a quarter* thick, is worth *six-*

pence the foot, and a square of flooring will require *one hundred* of *tenpenny* flooring brads; under the ends of the joists I would have a plate D of *inch and quarter* board, six inches broad, laid into the wall, this will add about *eight* feet of board to every square. I advise also, that a plate of the same scantling, planed on the under side only, be laid on the joists and nailed down to them; and a similar plate laid along each end of the room at the same level, the one for the sides of the flooring boards to joint to; the other to receive the heading joints, this will increase the price of the square about *four shillings*. The price therefore of a square will stand thus,

	<i>l.</i>	<i>s.</i>	<i>d.</i>
33 feet of joists, work included, 6 <i>d.</i>	0	16	6
100 feet of flooring board at 7 <i>d.</i>	2	18	4
work included			
8 feet of plate at 7 <i>d.</i>	0	4	8
The extraordinary expence of the	0	4	0
plate above mentioned			
100 tenpenny brads	0	0	10
	<hr/>		
	4	4	4

There is another method of making the naked floor, which is, to put a beam across the room of *eight* inches square, and then the joists to be of quarter, *four* inches by *three*, placed in the manner above described; in this case, if the bearing of the joists be but *five*

² *Grooved and tongued.* That is, on both edges of the board, exactly in the middle, is made a groove about three quarters of an inch deep, then a thin piece of wood, of an inch and a half broad, is put into the groove of one board, and the other is drove up to a close joint on it; Figure 9 in the first miscellaneous plate, represents the section of two boards, the grooves A A on their edges, and the thin piece of board B called the tongue, all separate; and Figure 10 represents the same when closed.

feet *eight* inches, the expence will exceed the above method a mere trifle; but if the bearing be greater, the scantling of the joists must be increased, or the joists placed nearer together, whereby the expence will be considerably enhanced. The former method of flooring I have found by experience to be the best ever yet put in practice for small houses, where the bearing of the joists does not exceed twelve feet; it is attended with these peculiar advantages, there is no harbour for vermin; the joints of the flooring boards are so secured, that neither wet, nor dust, can fall from the upper to the lower floor; nor is there any occasion for lath and plaister.

The partitions to be of boards *one inch and a quarter* thick, grooved and tongued, and planed on both sides, in the same manner as the floors, so the price will be *three pounds five shillings* the square; that is, *three pounds two shillings* for board and work, and *three shillings* for nails and battens; this is to be understood of such partitions as have no doors in them, for where there are doors, *two shillings* and *six-pence* must be allowed for each, to pay for extraordinary labour and time, that must necessarily be employed in framing and hanging them, and in making the latch and catch, or such other fastening as shall be thought expedient.

All doors, not in partitions, to be battened doors, with frames of quarter; every door *three* feet wide, and *six feet four inches* high, will take *twenty-four* feet of inch board, battens included, and *eighty* tenpenny nails;

each frame will require *twenty* feet of quarter, and a man can make a well rabbetted door, its frame, hang, and put up the same, in a day; so that the price of a door stands thus,

	<i>l.</i>	<i>s.</i>	<i>d.</i>
24 feet of inch board at 5 <i>d.</i>	0	10	0
22 feet of quarter at 3 <i>d.</i>	0	5	6
80 tenpenny nails	0	0	8
Workmanship	0	4	6
A pair of sice hinges	0	1	6
	<hr/>		
	1	2	2

The windows for the lower floor are to be *three* feet wide and *four feet six inches* high; the frames of quarter; and the casements of *inch and quarter* board; the windows of the upper floor *three* feet square. One of the larger windows will take *twenty-two* feet of quarter, one foot of board, and a man can make such frame, casement, put up, hang the same, and put on all the fastenings in a day, the price of the larger windows will then be,

	<i>l.</i>	<i>s.</i>	<i>d.</i>
22 feet of quarter at 3 <i>d.</i>	0	5	6
1 foot of board at 5 <i>d.</i>	0	0	5
Labour	0	4	6
1 set of casement squares	0	1	0
1 pair of casement stays	0	0	3
1 pair of six inch H-L hinges at 1 <i>s.</i> 2 <i>d.</i>	0	1	2
1 pair of casement fastenings	0	0	2
10 feet of glazing at 9 <i>d.</i> the foot	0	7	6
Painting	0	0	8
	<hr/>		
	1	1	2

The smaller windows requiring about *five* feet less of quarter, and about *four* feet less of glafs, will be worth *sixteen shillings* each.

The stairs to be of inch board, and the

bearings of the same; whether the stairs be constructed as in plate VII, or as in plate X, the expence will be the same, both as to materials and as to workmanship; but if constructed as in plate XVIII, the expence will be a trifle more, as I shall explain in its proper place.

The cottages being *eight feet eight inches* high, from floor to floor, there will in every stair case be required, *twelve* steps and *thirteen* risers, in which will be used *sixty-four* feet of board, *eighteen* feet of quarter, *fifty* tenpenny flooring brads, and *one hundred* of tenpenny nails; a man can work, set up, and finish such a stair case in two days and a half; the price therefore of a stair case, will be as follows,

	<i>l.</i>	<i>s.</i>	<i>d.</i>
64 feet of board at 5 <i>d.</i>	1	6	8
18 feet of quarter at 3 <i>d.</i>	0	4	6
Nails	0	1	3
Workmanship	0	11	3
	2	3	8

Although I cannot recommend *Timber buildings*, knowing them to be attended with many and great inconveniencies, particularly their being hot in summer and cold in winter; their being too liable to fire, and their being continually in want of repairs; yet as some Gentlemen may be desirous of following the practice, I will give them the best advice I

can, and this is no way better to be done, than by shewing the method of framing the front and end of the double cottage described in plate 10 of this work. The scantling of the timber necessary for cottages of this sort is but small, the strength of the building depending more on the mechanical construction, than on the size and quantity of the materials.

All timber buildings must be supported on a brick or stone foundation of about two feet high above the natural ground, on this foundation must be laid the fill A A, in the first figure of the second miscellaneous plate, which represents the framing of the south side of the above mentioned cottages; into the fill must be tenoned the angular posts B B, and all the other upright studs; the fill must be *six inches* broad and *three* thick, and as it will be difficult to procure timber long enough for the fill to be of one piece, let it be scarfed or lengthened with a dove-tailed joint^a; the studs a a a, that form the jaumbs of the doors and windows, are to be *six inches* broad and *four* thick, all the others only *two inches* thick; the braces b b b, to be also *six inches* by *four*; the angular posts, B, B, should be in one length from top to bottom, and *six inches* square. The girder C C to be tenoned at each end, into the upright posts with a *dove-tailed*^b tenon; and scarfed with an in-

^a A dove-tailed joint. As expressed by the 11th figure of the first miscellaneous plate, at the letter A.

^b A dove-tailed tenon, see fig. 3, miscellaneous plate 2, where A is the girder, B the upright angular post; at the end of the girder must be made the dove-tail tenon a b c d, the mortice b o p c must be cut through the post so much longer, than the girder is high, that when the dove-tail is in its place, there will be an hole a d p o through the post above the girder; into this hole must be driven, tightly, the wedge C, which will always confine the tenon in its place.

dented ^c joint; this girder to be *six inches* square, and its office is to support the floor of the chambers; the studs *a a a*, in the lower tier, are tenoned both into the fill, and into the under side of the girder; the other studs only into the fill, as cutting so many mortices in the girder would weaken it too much; but to supply the place of a mortice, let there, between every two studs, be tightly driven a piece of inch board and nailed to the under side of the girder, as expressed by the dotted line; the same must be done both on the upper and lower sides of the braces as mortices to the studs, that rest on those pieces; the office of the braces is not only to keep the framing steady, and prevent its rocking from end to end, but also to admit stuff of almost all lengths to be made use of; and and here I caution the builder always to place the braces leaning towards the middle of the work, and not to be guilty of that frequent error of placing them the contrary way, as I have shewn by the dotted lines *x x* in the upper tier. The wall plate *D D*, which in these buildings is more properly the architrave, to be *four inches* thick, scarfed as the girder, and dove-tailed ^d its whole depth into the heads of the angular posts; the studs *a a a*, in the second tier, are to be tenoned both into the

girder and into the architrave, but the others only into the girder, and secured at top as those in the lower tier; the second figure of this plate represents the framing of the ends, and needs no further explanation, than that the timbers *A A*, and *B B*, are to be tenoned into the angular posts with a *dove-tailed* tenon, and the timber *C C*, tenoned into the same posts with a common tenon; this piece may be placed, either higher or lower, at the discretion of the builder, as its use is chiefly to give an opportunity of using short stuff.

The roofs of these buildings differ from those of stone or brick buildings, as their office is as much to keep the opposite sides of the building together, as to cover the cottages, and must therefore be framed with principal rafters, as *fig. 8, miscel. plate 2*, where *A* is the girder, or span beam; *B B*, the principal rafters; both girder and rafters are *six inches* by *four*; the rafters to be abutted into the girder as at *C*, and halved together at the point; care must be taken that the toe of the rafter at *b*, be within the upright of the inside of the framing; into these rafters must be framed purlines of *six* by *two*, as at *c c*; and at the point, between each pair of principals, must be a ridge piece of quarter *four inches* square, as at *D*, the upper sides of

^c *An indented joint.* This is the strongest and best way of scarfing I ever saw, or can think of, and is explained by the fourth and fifth figures of the second miscellaneous plate. Fig. 4 represents the pieces of timber cut into the proper shape, but not joined; the length *a b* must be about two inches shorter than *c d*; and *g h* as much shorter than *e f*; so that when joined, as in *fig. 5*, there will be left the square hole *B*, through this hole must be driven a double wedge, which will force the points *a* and *b*, into the angles *e* and *f*, and the beam will thereby become full as strong, as if it was in one piece.

^d *Dove-tailed, &c.* This is explained by *fig. 6 and 7* in the second miscellaneous plate, where *a a a a* denote the head of the post, with a proper dove-tail mortice and shoulder; and *A*, in *fig. 7*, is the dove-tail of the wall plates.

which must bevel with the rafter, but the under sides square the one to the other; these ridge pieces must be supported by a small collar o o; on these purlines and ridge piece lie and are nailed the small rafters of *three* inches square; the roofs must be always hipped at the ends, and the wall plates tied at the corners with angular braces, as in *fig. 7, miscel. plate 1*, the hip rafter serving as a brace to keep the whole roof steady; the girders at the ends must be calked down^e into the wall plate with an *hidden dove-tail*.

The floors will differ from that in *the eighth figure of the first miscellaneous plate*, in nothing but that the ends of the joists must be calked down to the girder, as the girders of the roof are calked down to the wall plate; and lest the ends of the joists should rise, it will be necessary to fasten them with a large staple drove over them into the girders; but great care must be taken not to let the staple pass through the joist into the girder, as that would entirely destroy the operation of the dove-tail, whose office is manifestly to keep the sides of the building from spreading, both by these joists of the floor, and by the girders of the roof; from hence will appear the reason of scarfing the architrave and girder with an indented joint, because that method of scarfing resists the pull or thrust both lengthways and breadthways, whereas a dove-

tail scarf, as in the fill, resists only the pull lengthways.

PLASTERERS' WORK.

There is so little a quantity of this work required in building these cottages that it will not be worth the while of a Gentleman to provide the materials, every country plaisterer having in general by him a sufficient quantity to perform the work at *one shilling* and *four-pence* the yard for ceilings, including laths and nails; and *eight-pence* a yard for plaistering on walls.

TILERS' WORK.

There is no branch in the building business, except the paviments, that admits of so great a variety as this, but there is none of greater consequence, nor that requires a greater skill in the workman, for which reason, the workmanship is always by the great. The materials made use of in the neighbourhood of Bath, are either *stone tile*, *cornish slate*, *pan-tile*, or *thatch*; first then of the *stone tile*, one waggon load will do a perch of work, consisting of two hundred and twenty-five feet, or two squares and a quarter; at the quarry a load will cost *twenty five shillings*; the carriage *six shillings*; the workmanship *fifteen shillings*, and the laths *two shillings* and *six-pence*; pins and nails *three shillings*; and mor-

^e The method of calking with an hidden dove-tail is thus: Let *fig. 7*, in *miscel. plate 2*, be the wall plate; on the upper side of this make a dove-tail mortice about two inches deep, as at *C*, with the shoulder *a b c d*; on the under side of the girder *D*, *fig. 9*, cut the dove-tail *P*; let this dove-tail be driven down into the mortice *C*, and the operation of the whole will be readily seen.

tar *three shillings*, in all *two pounds fourteen shillings and sixpence* the perch, or *twenty-four shillings* the square.

Of the cornish slate, fifteen hundred will do a perch, and at the sea-port will cost *twenty shillings* the thousand; the carriage *five shillings* the thousand; the dressing and laying on *fifteen shillings* the perch; the nails, laths, and mortar, the same as the stone tile, in all, *two pounds thirteen shillings and sixpence* the perch, or *twenty-four shillings* the square.

Of the pantiles *one hundred and sixty* will do a square; to the same quantity, will be required *ten, ten feet* pantile laths, and *one hundred and twenty* of fixpenny nails, the tiles are worth on the spot *eight shillings* the hundred; and the laths *three shillings* the dozen; and *three shillings* for the square is the price of workmanship, so that the price of a square will be *eighteen shillings and tenpence*.

THATCH

Is of two kinds, one with haulm, or straw that has not been thrashed, but the sheaves of wheat first combed with an iron toothed comb made for that purpose, and cleared from all short straws, from weeds and grafs, and then the ears cut off with a sharp sickle; the other with straw that has been thrashed. Of the first kind, eight sheaves of haulm at *twelve shillings* the dozen; *one pound* of rope yarn at *sixpence* the pound; *one hundred* of fourpenny nails; and *one hundred of three feet* laths at *sixteen pence* the hundred, will do a square; the workmanship of which will be

three shillings and sixpence, making in the whole *thirteen shillings and eightpence*.

Of the second kind, a ton of straw will cover six square; and straw is worth about *forty-five shillings* the ton; so that the straw, for a square, will cost *seven shillings and sixpence*; but in every other respect the expence of covering with straw is the same as covering with haulm. The first kind of thatching has this advantage, that it will last *twenty-five or thirty* years, whereas the second kind will require renewing every *twelve or fourteen* years, and there is but *sixpence* different in the price. The weekly wages of a thatcher and his boy are *twenty shillings*.

In countries where brick is the building material, the tiles are burnt ones, commonly called plain tiles. To cover a square at a *six inch* gauge, it will require *seven hundred and sixty* tiles, at *fifty shillings* the thousand; *one* bundle of laths, at *three shillings*; *six hundred* threepenny nails, a peck of pins at *one shilling*; *two* bushels of lime at *sixpence* the bushel; and *one* bushel of sand at *threepence* the bushel; one day's work for a bricklayer at *three shillings and sixpence*, and one day for his labourer at *three shillings*; so the price of a square will stand thus,

	l.	s.	d.
760 tiles at 5s. the hundred . . .	1	18	0
1 bundle of laths	0	3	6
600 of nails at 3d.	0	1	6
A peck of pins	0	1	0
2 bushels of lime	0	1	0
1 bushel of sand	0	0	3
labour	0	6	6
	<hr/>		
	2	11	9

PAVIOURS' WORK.

Although this branch will admit of so great a variety, I shall confine myself to the paving proper for cottages, the rag-tile is generally made use of, and is worth *one shilling and six-pence* the yard, materials and work included; there is a kind of plaister floor much used in countries where lime and coal ashes are in plenty, it is a very good floor, and may be made for *nine-pence* the yard;

where brick is the material, *thirty-two* will pave a yard square, if laid *flat ways*, and *forty-eight* if placed on *the edge*, and will be worth *four-pence* per yard for laying, so that if bricks are *two pounds two shillings* the thousand, a yard of paving flatways, will cost about *two shillings and two-pence*; and *three shillings*, if laid edgeways. Near the sea coast they pave with a small pebble, that makes very neat work, and may be done for *one shilling* the yard; flints also make no bad pavement, and is very cheap.

A SERIES
OF
PLANS FOR COTTAGES, &c.
CLASS THE FIRST,

CONTAINING
PLANS OF COTTAGES CONSISTING OF ONE ROOM.

PLATE I.

NUMBER 1. is the most simple cottage of any, being nothing more than a room, B, *twelve feet* square, and *seven feet and an half high* to the under side of the wall plate; with a porch, A, *five feet* long by *three feet eight inches* wide. The situation of the bed is marked with an asterisk; the chimney is placed in the angle; and the flew of it brought round to the back, and carried up in a gable end; the cottage fronts the east, and receives its light from the south.

Number 2. is the cottage, having one shed, A, instead of a porch; another shed, C, for a pantry; and the conveniency, D; the width of these sheds is determined by the pitch or declivity of the roof of the cottage; under the eaves of which the roofs of the sheds finish; and their width in this and in other plans, where the whole of the cottage is on the ground floor, is *three feet eight inches* in the clear; the entrances of these sheds are level with the ground, and out of them you ascend into the cottage by

steps made in the thickness of the wall; this cottage I suppose to front either the south or the east, and to receive its light from that point to which it fronts; the flew of the chimney of this as well as of the foregoing, is brought up in a gable end at the back fronts, and the roof in the front is to be hipped.

Number 3. represents two of these cottages joined together; and I suppose them to receive their light from the south; the chimneys are placed back to back, from whence arises, as well the great conveniency of having cupboards or shelves on each side of them, as the saving of materials.—The pantries c. c. must in this case be placed behind.—These cottages, with a piece of ground for a garden, would serve a single person; or two women, or a man and his wife, with one or two children.

I am well satisfied that it would be economy to build in most parishes a row or rows of these small cots. There are many poor persons who very much want a dwelling at a

low rent, and if the parish would at a low rent render the industrious labourer a warm, comfortable, and healthy habitation, it would be a means oftentimes to keep him from wanting other parochial relief. The poor pitiable widow also, with three or four small children, could she live rent free, would be enabled, with a little other assistance, to breed up her family; and the impotent poor, if provided for in like manner, might live comfortably on a very small weekly allowance.

Of this truth the Magistracy of the Borough of St. Ives, in Cornwall, were so well convinced, that they have erected a building from a plan of mine, containing sixteen dwellings for their impotent poor; besides a very commodious apartment for a parish officer to inhabit, whose business it is to inspect the conduct of the paupers, and to see that the whole building be kept in clean and decent order; the plan of this building I shall give in the fourth plate, with a full description of the same.

The stone of Cornwall, with which they build, is either a kind of granite called the moor stone; or a very hard stone, called the iron stone; both so hard as with the greatest difficulty to be wrought into shape, and therefore with it they cannot build walls less than two feet thick; both these kinds of stone, as is the case with all hard stone, give, or are wet in moist weather; and therefore makes all habitations built with them unwholesome; on this consideration I recommended lining the walls with brick, and to build all the thin

partitions with the same materials; and though bricks were so dear at this place, that to use them would increase the expence of the building full ten per cent. yet the committee, a striking instance of their humanity, adopted my recommendation, declaring “ they would “ build habitations for their poor, such as “ were fit for human creatures to dwell in, “ and rescue them from the miserable huts “ they were at present obliged to put up with.” The expence of this building, agreeable to contract, was five hundred and fifty pounds.

PLATE II.

In this plate the length of the cottages is increased to *sixteen* feet, the advantage of which is apparent from inspection. In numbers 1 and 2, the east and west ends are gable ends, and the chimney is placed in the east end of each; although in number 1, it is a matter of indifference whether it be in the east or west end; this number also varies from the same number in the first plate, by having the addition of the pantry, C, and of the convenience, D. Number 3, is two of the cottages joined together.

PLATE III.

Number 1. is the plan and elevation of four adjoining cottages; each two, has a common internal porch, A. and I suppose a small garden or outlet behind each; a row of such cottages is what I recommended in the description of the first plate, to be built in most

parishes, particularly in the manufacturing countries, for the accommodation of the industrious poor, at a low rent. I must here observe, that wherever rows of cottages are to be built, be it in town or country, care must be taken to have proper covered drains or sewers to carry off the soil and filth; there being nothing so offensive, not only to the public in general, but to the inhabitants themselves, as that too common and almost universal practice of throwing all the dirt and filth into the street, or highway before the doors of the houses.

Number 2. is a row of dwellings, for the parochial impotent poor. Here A is a common internal porch to the rooms D and B. The room D is for the dwelling of a pauper, that is not so feeble, but can take care of him or herself; and the dwelling B, for a pauper that is able to take care of a more impotent one, that might be lodged for that purpose by the parish officers in the adjoining room C. Such an apartment as this would be very proper for a widow, with one or two children of her own, who might be entrusted by the parish with two or three orphan poor children, to breed them up, till they were of an age, proper to be bound apprentices. For these cottages there is no occasion for the shed behind to serve for pantries, sufficient for that purpose are the shelves on each side the chimnies. And as for the necessaries, they are placed at each end at E, in a small enclosure without a roof; nor will a garden or outlet be at all necessary.

PLATE IV.

Figure 1. is the ground plan, and figure 2, the upper floor of the building now erected at St. Ives, for the accommodation of the impotent poor of that Borough; it is situate at the south west corner of the town, at the foot of a hill that rises pretty quick to the southward, it is bounded on the west by a house and garden belonging to a person of the town, and on the south and east with ground belonging to Mr. Stephens, of Tregenna.

When I first took a plan of the ground, the south west corner, C, the north west D, and the north east F, stood as they do at present; but the south east corner was at H, which made the spot of ground very awkward; on application to Mr. Stephens, he generously gave so much ground as not only to make the east front E F, parallel to the west front C D, and the south front C E square with, or at right angles to both, but also ground sufficient to make the area to the south.

The building consists of eight rooms, of twelve feet square on the ground floor, with the same number of equal dimensions on the upper floor; together with the apartment marked A, and the chamber B over it, for the habitation of a proper officer to superintend the paupers. G G, are two conveniences, one for the men, and the other for the women. About sixty yards up the hill, towards the south, rises a large spring of very fine water, the property of Mr. Stephens, who will permit the parish to convey in pipes, as much

water from it, into a reservoir, or basin, in the middle of the court, as will abundantly supply the building. The east front abutting on building ground, I could not enlighten any of the rooms from that point. The four stair cases communicate each of them to four rooms; the level of the court, is about two feet and a half above the road that leads from

St. Ives to Penzance, and the floor of the lower rooms is sixteen inches above the level of the court; the stairs are of moor stone, and the landing place I, I, I, I, in the upper floor, are all of the same materials; but the floors of the upper chambers are of deal, one inch and a half thick, grooved and tongued.

CLASS THE SECOND,

CONTAINING

PLANS OF COTTAGES CONSISTING OF TWO ROOMS.

THIS class of cottages will admit of two different modes of distribution, that is, both the rooms may be on the ground floor, or may be placed the one above the other; of each mode in order.

PLATE V.

Number 1. This cottage is twenty-one feet long in the clear, of which space the room, B, occupies twelve feet and six inches; and the bed room, C, eight feet; the entrance is screened with a porch, A; and behind is the shed, D.

Number 2. is twenty-five feet long in the clear, the room, B, and the bed room, C, are each ten feet wide; the porch A being on the inside, makes a very convenient recess E for a bed, which in this sample is thrown open to

the bed room C, the most proper situation for a bed for small children; and behind is the shed, D, for a pantry.

Number 3. This cottage is twenty-nine feet long in the clear, the rooms B, and C, are both twelve feet square; the internal porch, A, occasions the recess, E, as in number 2, but in this sample the recess is thrown into the room, B, instead of the bed room, C, for the sleeping place of an adult; the shed, D, is here likewise added.

Number 4. This is also twenty-nine feet long, but the rooms B and C, being only ten feet wide, makes the bed place, D, larger than in the preceding plans, and it must have a window, and of consequence the shed behind cannot extend the whole length of the

building, but must be in two parts, as E for a pantry, and F to contain the privy and a store place for the fuel; the roofs of these sheds may be hipped.

PLATE VI.

Number 1. Represents a double cottage of this second class; I have chosen to adjoin two of the first number in the last plate a little enlarged, in order to give room for a bed in the room, A, and to shew in the front how the porch, instead of being placed on the plinth, as in the sample aforementioned, may stand on the ground, and the ascent into the cottage to be by steps in the thickness of the wall. It is very easy to imagine the effect of a double cottage of either of the three other examples. But a better method of building two cottages of this class is as,

Number 2. Where I have made an internal porch, as a common entrance to both cottages; this porch causes a very convenient recess, B, for a bed, as in numbers 2 and 3, in the last plate.

These are all the varieties of disposition that cottages consisting of two rooms both on the ground floor, will admit of.

PLATE VII.

Number 1. is nothing more than number 2, in the first plate, with the addition of an upper floor, and of the stairs; as the situation of the chimney and doors will not admit of a place for a bed in the lower room, this cottage will suit only an artificer, with a wife,

or a wife and small child, who can afford to give a little more rent than the inhabitants of the preceding cottages, such as masons, bricklayers, thatchers, plasterers, and many others who earn fifteen to twenty shillings per week; it will also suit many artificers in several branches of the manufactories, who are obliged to do their work at home; and it will be very proper for a turnpike house, or for a gate-keeper to any Gentleman's park.]

Number 2. By placing the chimney as in this example, a bed may be very conveniently placed in the lower room, which will render this cottage commodious to a much larger family than could possibly inhabit the preceding one.

PLATE VIII.

Here are two cottages adjoining of the example of No. 2, in the last plate, but attended with the small inconvenience of leaving the pantry, B, less than in the single one, but this is remedied by lengthening the cottage only three feet six inches, so as to have the stairs on the inside, as in

PLATE IX.

Thus by placing the stairs on the inside we not only gain the advantage of having a large pantry, A, to the North, but of increasing the entrance porch, B. On visiting the hospital at Ffoxfield, in Wiltshire, some time after the engraver had sent me a proof of this plate, I was both surprised and pleased to find the apartments of that structure to vary but

a little from this design, the difference was in having the rooms thirteen feet wide instead of twelve, the external door from the court, a, C, having the partition that divides the stairs from the room, D, inclining, as represented by the dotted line a, b, so as to give room for the opening of the outward door, and by the omission of the pantry behind.

PLATE X.

Although the plan of the cottage in the foregoing plate is very proper for the country, where there is plenty of ground, yet in towns and villages, where that may not be the case, it is but increasing the length of the building eighteen inches, and it will make an internal porch, and give room for the stairs in a different form, and though there will not be convenient room for a bed below, yet this inconvenience is greatly compensated by the recess, A, in the chamber above; indeed by letting the stairs begin to rise from the porch, A, on the ground floor, there may be room for a bed below, as in the foregoing plan, but this is only admissible in country villages, but not in large towns or cities, for reasons I shall give in describing the following plates; a number of these cottages built in villages would be of great service, and though to private persons they probably may not answer in regard to interest of money, yet if built at a parochial expence they would answer the

purpose of accommodating the industrious labourer with a family at a small and easy rent.

PLATE XI.

Here I join four cottages together, and it is an easy matter to imagine a continuation of them to any number; these are proper for large towns or cities, in two of these plans the stairs from the lower room, A, begin to rise at D, and will land at the chamber, C, above, which causes the door, E, to be near the head of the bed; but in the other two the stairs from the room, B, begin to rise at F, which land at G, in the chamber, D, above, whereby the bed will be better screened, but the builder may take his choice of either method. If these cottages are built in large towns or cities, by all means avoid letting the stairs begin to rise from the porch so as to make room for a bed below, in order to prevent any avaricious inhabitant taking an inmate; an inconvenience felt by most parishes, though I must own there should be some care taken to provide for single persons wanting lodgings; but more of this in describing the cottages of the third and fourth class. In these dwellings, if it can be done, let there be an outlet or small garden to admit of the pantry, C, the wash place, B, the convenience, P, which will keep the whole sweet and wholesome.

CLASS THE THIRD,

CONTAINING

PLANS OF COTTAGES CONSISTING OF THREE ROOMS.

THIS class of cottages will admit of four different modes of distribution, 1st. All the rooms on the ground floor;—2dly. Two rooms below, and one above;—3dly. One room below, and two above;—4thly. The three rooms one above the other. The first mode of distribution will admit of no less than eleven variations.

PLATE XII.

This plate contains two varieties of the first mode of distribution.

Number 1. is thirty feet long in the clear, of which the two rooms, D and G, take ten feet each, and the room, F, nine feet. The entrance to this cottage is on the north side at the porch, A, on one side of which is the store place, B, and on the other side the pantry, E; from the porch, A, you ascend into the passage, C, by two steps in the thickness of the wall.

Number 2. is thirty-four feet six inches long in the clear, of which the central room, B, takes twelve feet; the room, F, nine feet; the room, G, ten feet nine inches, and the remaining space is occupied by the wall and

partition. The entrance is on the east by the passage, A; the floor of the pantry, C, is level with the floor of the room, B, and this pantry may be made of any width you please. The roof is hipped into the roof of the main building, as shewn in the north front, D is the store place.

PLATE XIII.

This plate also contains two other varieties of the first mode of distribution. The entrance of Number 1. is from the south into the internal porch, A, which communicates to the rooms, B and C, each ten feet wide; from B, is the door not only into the pantry, E, but into the sleeping room, D, which projects about three feet and six inches northwards, and its roof hipped into the roof of the main building, as shewn in the north front. This room is supposed to be a bed place for an adult, and the closet, F, is adjoining to it.

Into Number 2. you likewise enter from the south, A is an internal porch of a larger dimension than any of the preceding, and communicates to the bed room, D, and into the room, B; a, is a recess for shelves. The

room, D, is ten feet wide, and the room, C, is of the same dimension; E is the pantry, and F the store place, in the corner of which is intended a flew to go into the main stack.

PLATE XIV.

Of the same mode of distribution here are two more varieties.

The room, B, in Number 1. is fourteen feet and a half long, and the entrance screened by the porch, A; in the corner is a place for a bed. The bed room, C, is ten feet wide, and the room, D, eight feet; this room is placed behind, and lighted from the north, in order to serve for a work-shop, as well as a bed room, there being many branches, not only of the woollen, leather, cotton, and Manchester manufactories, as well as several others, in which the workmen perform their work at home, and require a strong and steady north light. Should this cottage be intended for a weaver, the back room must be extended more to the northward.

Number 2. differs from the former, in having the porch, A, on the inside; this reduces the room, B, to ten feet wide, and forms the recess, d, for a bed, which may be either thrown to the room, C, as in this plate, or to the room, B, as in Number 3 of the fifth plate. In both plans, E is the pantry, and F the store place.

PLATE XV.

Number 1 and 2 of this plate cannot be so properly called varieties, as improvements

on the two examples in the last plate, viz. by enlarging the room, D, putting a fire place in it, and altering the situation of the chimney in the bed room, C, by placing it further from the bed. In the north front, instead of hipping the roof of the projecting room, it is carried up as a gable end. Number 3 is but a similar improvement of Number 2 in the thirteenth plate, the south front of which is the same with this; and the south front of the two in the last plate, are the same with the corresponding ones in this plate.

PLATE XVI.

Number 1. is two of the cottages given in Number 1, Plate 13, and joined together. I have only increased the width of the bed place, D, and made the entrance into it from the room, C, as I suppose it to be the bed place of girls or of children who should be more immediately under the care of the mother; o, shews where a flew may be placed to be drawn into the stack.

Number 2. is a plan for two adjoining cottages on an entirely different construction from the foregoing, and I think more convenient. On this plan a regularity of Front can be preserved, which cannot be done in a single cottage. Here is an internal porch, A, that communicates to the chamber, D, and to the room, B, and makes the useful recess, d. From B, you go into the chamber, C; the pantry, E, is constructed as in No. 2, Plate 12, except in the recess, g, where may be placed a flew.

PLATE XVII.

Number 1. is the only example I can give of this third class of cottages, according to the second mode of distribution, that is, with two rooms below and one above, and it needs no further description, than that the entrance is at the side at A, which leads to the room, B, adjoining to which is the chamber, D, and over B, is the chamber, E. C is the pantry.

Number 2. This is also the only example of the third class of cottages according to the third mode of distribution, but I am of opinion would prove the most useful dwelling of any, as it admits conveniently of room for three beds. This cottage I make sixteen and a half feet long in the clear; A is the entrance porch, C the pantry, and B the dwelling room; the stairs are six feet ten inches by six feet, and being placed directly in the middle of the back Front, gives sufficient room to get up to the upper or chamber floor, and by making a step in the thickness of the wall above, there will be sufficient head room for the stairs to be covered with a skeling roof. The upper floor is divided into two rooms by a boarded partition. In the execution of this cottage and in the following ones of two rooms in the upper floor, and where the stairs are placed in the outside—and are intended to be covered with a skeling or shed roof, great care must be taken to observe the dimension of six feet ten inches by six feet, not only to give head room for the stairs, but to make a pier between the doors that lead

from the stairs into the chambers D. Although I here propose to have the stairs covered with a shed roof, I cannot but recommend the carrying of the walls of the stairs to the level of the walls of the cottage, and then hipping the roof into that of the cottage; in this case there will be no occasion for the step in the thickness of the wall, but the wall may be thinned as in No. 2. Plate 13. or as expressed by Fig. 3. in the miscellaneous Plate, still the stairs must be six feet ten inches by six feet; but you must begin with a winder, and land above in the same manner.

PLATE XVIII.

In this plate two of the foregoing cottages are joined together, in which case the pantries C C, will be on each side of the stairs.

PLATE XIX.

In this example of the two adjoining cottages of the third class, I omit the shed at each end, and make the cottage nineteen feet long, instead of sixteen and a half in the clear; here then will be an internal porch, A, which admits of a recess for a bed in the lower room, which will render the upper chambers larger; e the wash place, m the flew, d the pantry. It will be most convenient to make that which has the fire place in it, larger than the other, for many obvious reasons, as shewn in the plan. Care must be taken to place the middle of the stairs to answer exactly with the partition above, to give room for the doors

into the chambers, and the pier between them.

PLATE XX.

An example of a single cottage according to the fourth mode of distribution, would be preposterous in the elevation, so that I only give an example of two such cottages adjoining each other, suited for the country. The plan explains itself, only I must observe that in the upper floor there are no fire places, nor are they wanted. The breaks in the party wall are to receive the flews of the chimneys below, in order to bring them regularly out above the roof.

PLATE XXI.

In cities and large towns I cannot but think that a row of such dwellings as are described in this plate, would be of great fer-

vice, if built at a parochial expence, to accommodate such of their labouring workmen who are parishioners, and can afford to give a moderate, though not an extravagant or large rent for their habitations. The entrance is by an internal porch, A, five feet nine inches deep by six feet wide; the stairs, which are six feet square, communicate distinctly to both the upper chambers, in which the recesses over the porch afford good room for a child's bed.

It is very apparent that the approach to the stairs may be from the porch, A, instead of being from the room, B, in which case this building would become three distinct habitations; a circumstance to be avoided, in order to prevent an avaricious tenant taking in inmates, and thereby defeat the end of accommodating an industrious workman.

CLASS THE FOURTH,

CONTAINING

PLANS OF COTTAGES CONSISTING OF FOUR ROOMS.

WE are now come to the largest size cottages; there are only two methods of placing the rooms of this class, and that is either, first, all the rooms on the ground floor;—or, secondly, two rooms below and two above.

PLATE XXII.

Number 1. is of the first mode of distribution. This cottage is forty-nine feet six inches in the clear, the bed rooms, B and E,

eleven feet each, and the bed room, C, nine feet; the dotted lines in this room shew where a screen or partition may be placed; H the passage to the wash place F, with the flew m, as also to the pantry G, in which *a* is a recess for a cupboard.

Number 2. is of the same extent in the clear as Number 1. A an internal porch, D the dwelling room; C the bed room of thirteen feet six inches; B a bed room for children or girls, in which they will be under the care of their mother; E a bed chamber fit for an adult; F is the pantry; H the wash place, to which you descend by two steps in the thickness of the wall; o the flew, g a store place.

PLATE XXIII.

This cottage differs from any of the former, in having neither an external nor internal porch. It is thirty-one feet in the clear, where A may be either the dwelling room, or it may more properly be used as a work-shop suitable for some occupations, having an immediate access to it from the street; in the former case F will be the pantry, and in the latter an appendage to the shop; B C D are bed rooms, and E a passage; G a wash place, with the flew o, which may be drawn into the main stack.

PLATE XXIV.

To this cottage is intended a garden behind; it is thirty feet six inches in the clear;

the bed rooms, B and C, are eleven feet six inches each; the bed room, D, to the north, must be carried up as in plate 15; I a passage which communicates with the pantries F and H, and to the wash place E, and the store place G. The dotted lines shew where a screen or curtain may be placed to divide the dwelling room A, from the passage, to render it warm.

PLATE XXV.

Each of these cottages are thirty-four feet in the clear; the bed room, C, ten feet; and the bed room, B, seven feet six inches. F is the pantry, and E the wash place. D is a large bed room, in which one or two Females may lodge, and in that case b will be their conveniency, and a the conveniency for the males.

PLATE XXVI.

This is the second mode of distribution of the fourth class. In Number 1. there is no chimney in the bed room, C, but a pier or break to carry the fire place in the room above. D D is a pantry and wash place, where *a a* shew the flew. The staircase is placed in the back part, as in Plate 19, and must be carried up in the same manner, to give room for the doors to the bed rooms as well as the pier between them. Number 2. the internal porch A, forms a recess for the staircase, also a lesser one for a cupboard; D the pantry, b the flew. The stairs land above the lobby

or passage, E, which communicates to the bed rooms, L L.

PLATE XXVII.

Is the plan of two adjoining cottages, in which there are not any porches, c being used as the dwelling room or work shop. This plan admits of three bed rooms; the stairs must be carried in the same manner as de-

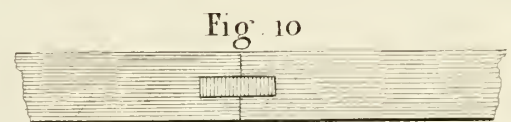
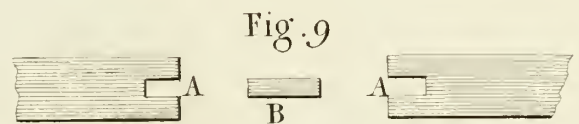
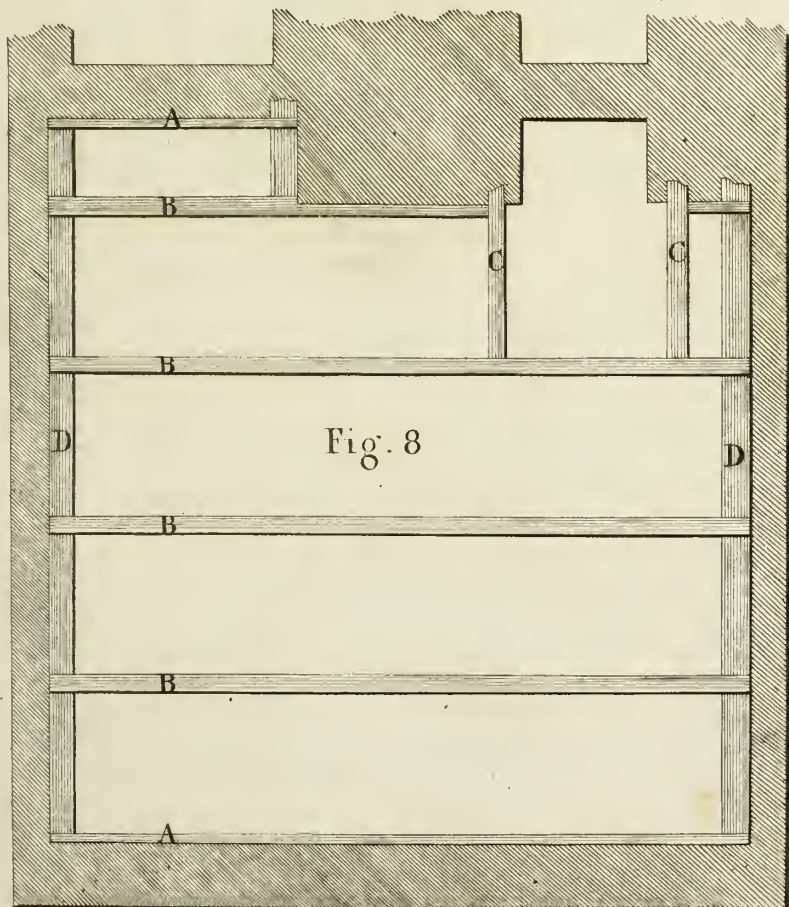
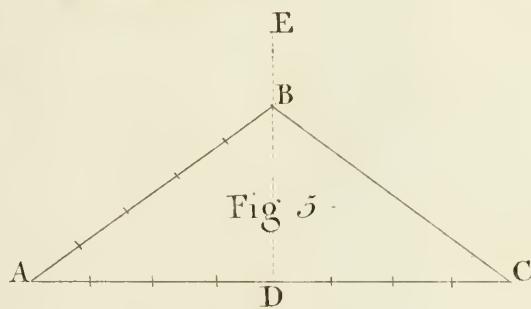
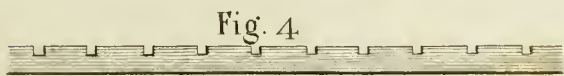
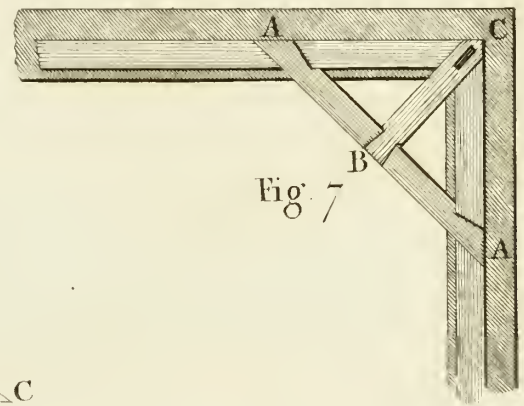
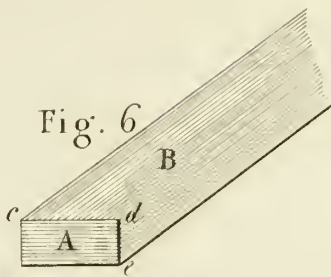
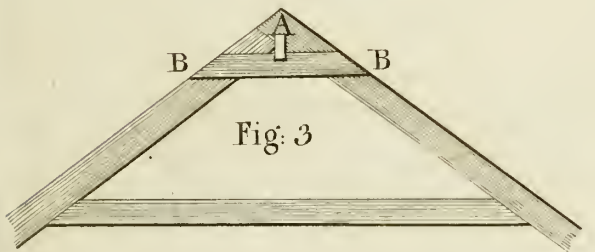
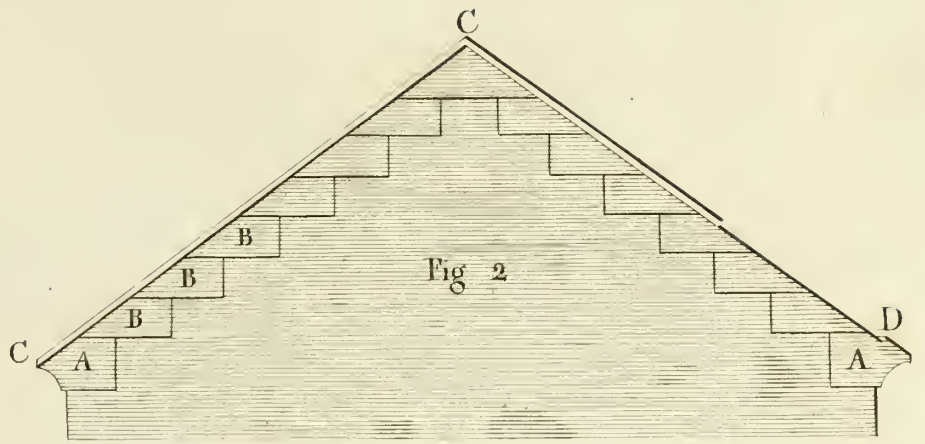
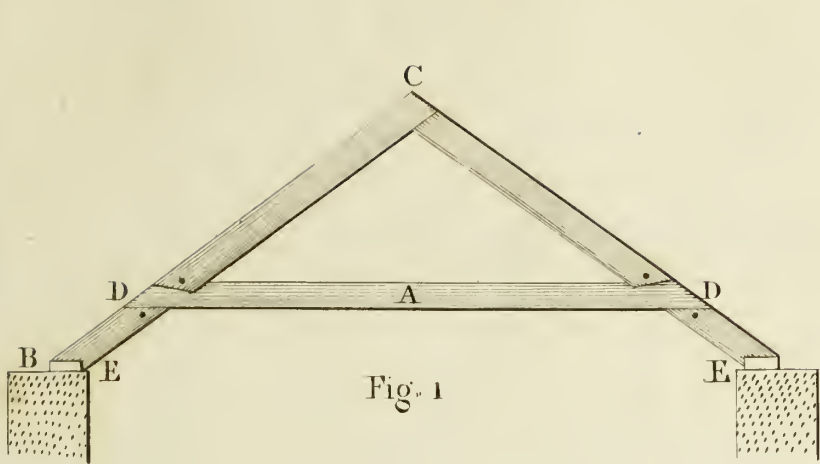
scribed in the last plate, Number 1. D is the pantry, and b a flew.

PLATE XXVIII.

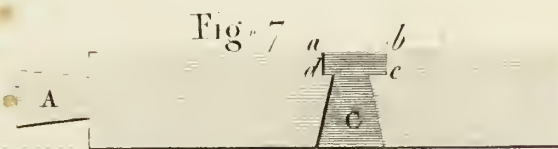
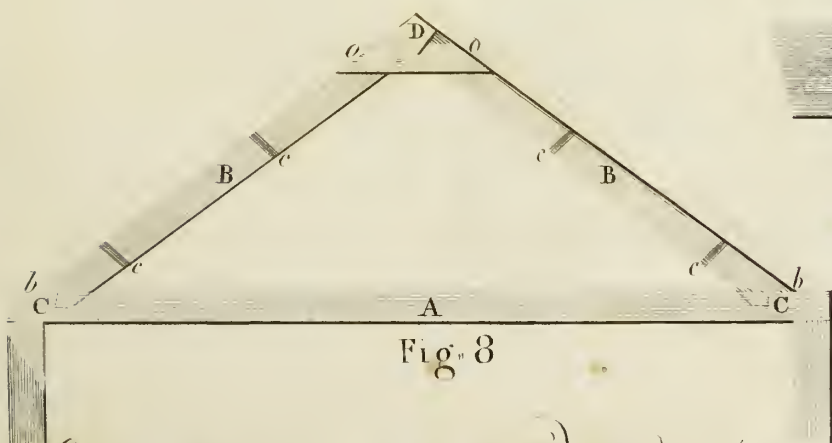
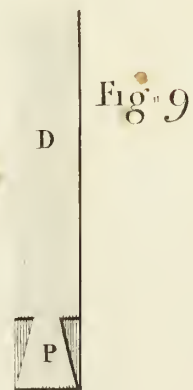
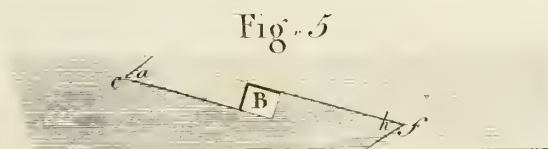
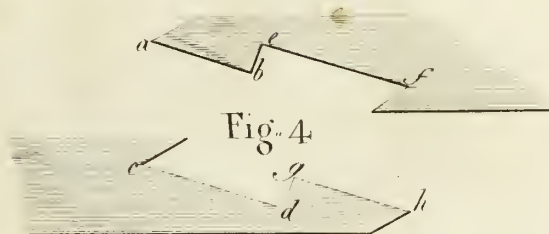
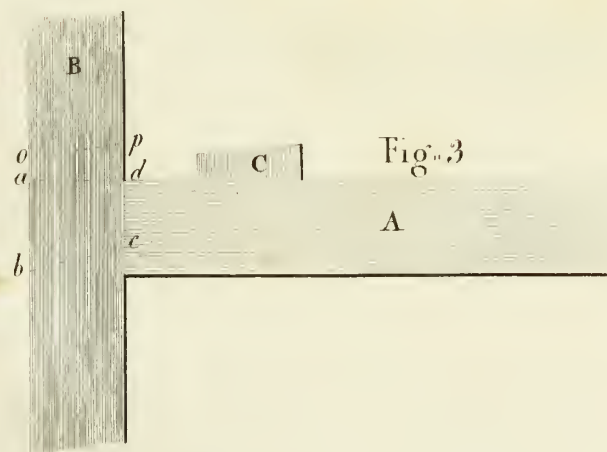
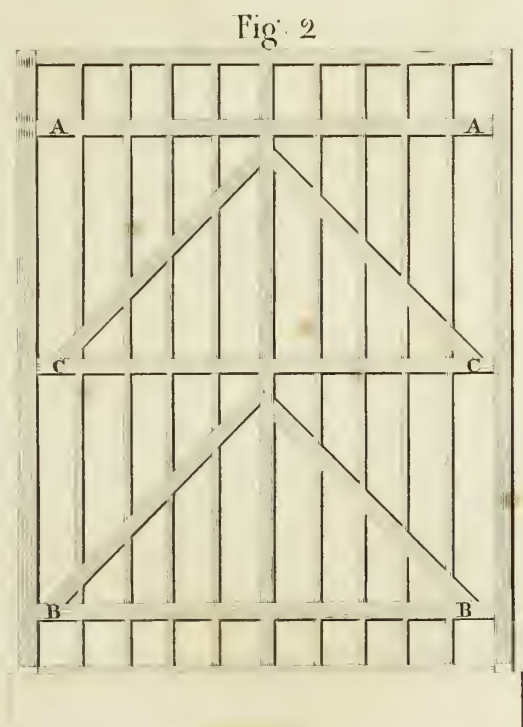
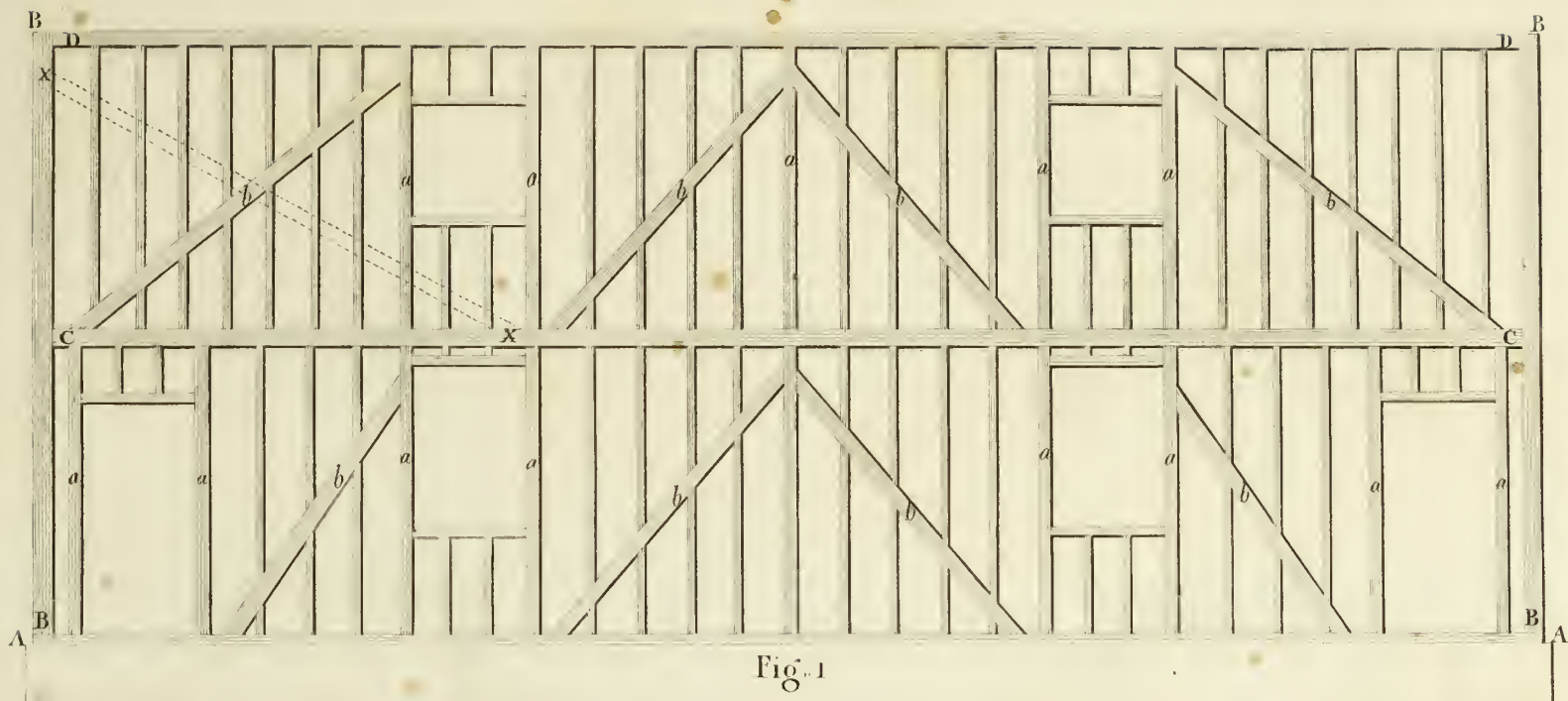
Is the plan of two adjoining cottages, the same as the example of the single cottages, Plate 26, Number 2, with the difference of D being the pantry, and E the wash place.

T H E E N D.

Miscellaneous Plate. 1.



Miscellaneous Plate. 2.



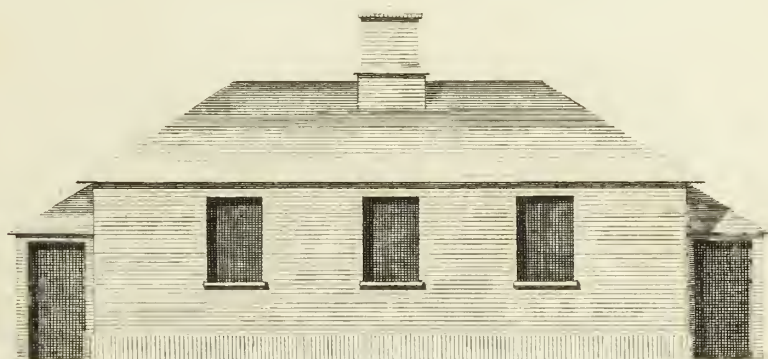
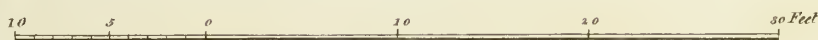
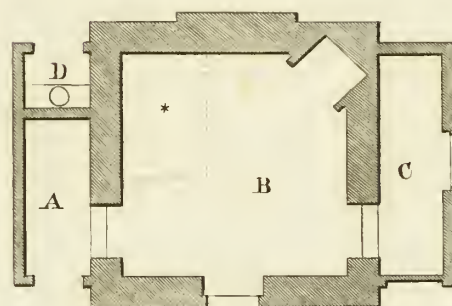
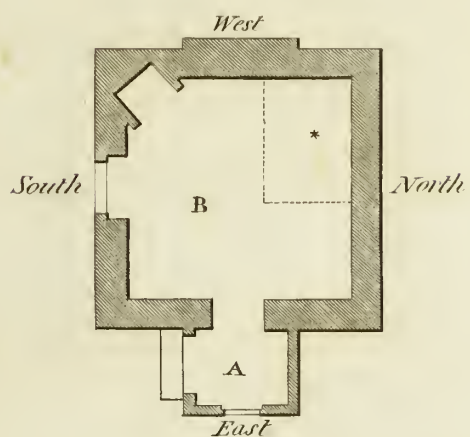
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P. Biehl. Sculp.



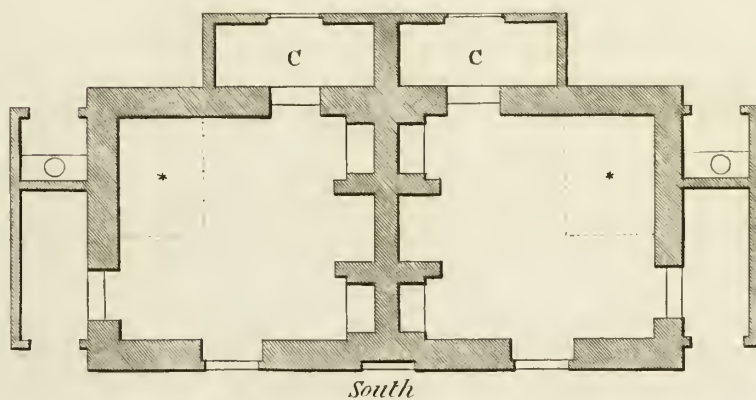
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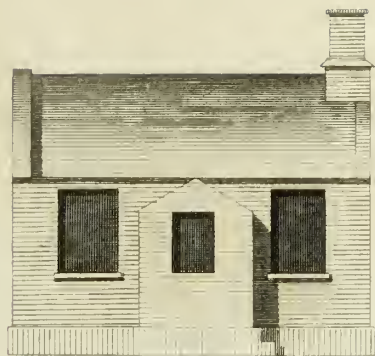


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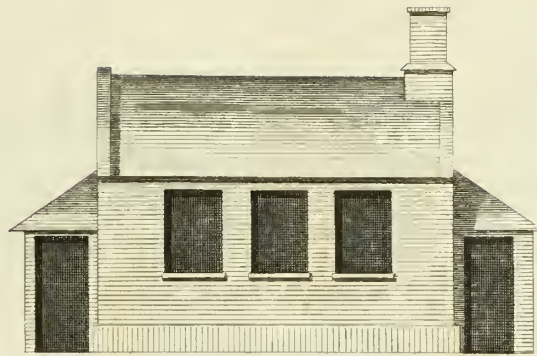
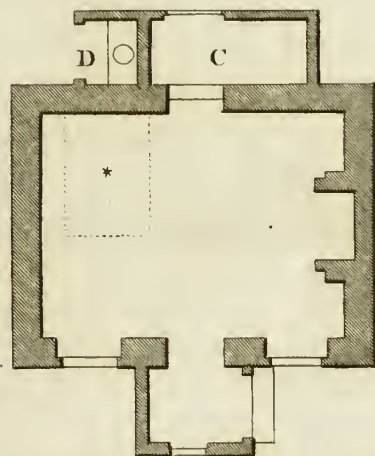


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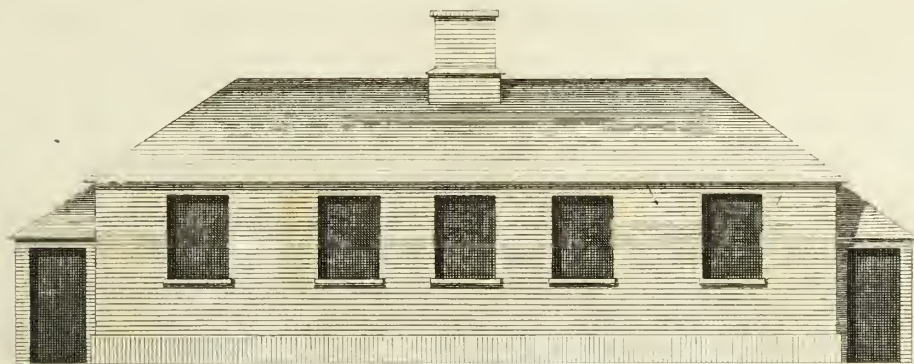
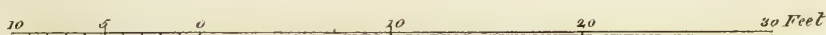
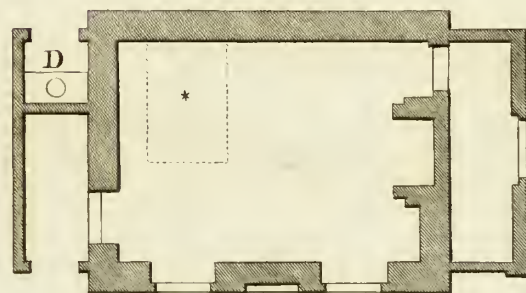




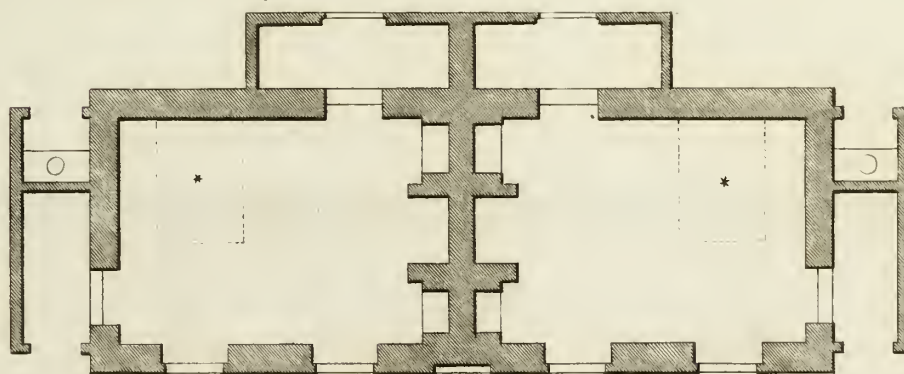
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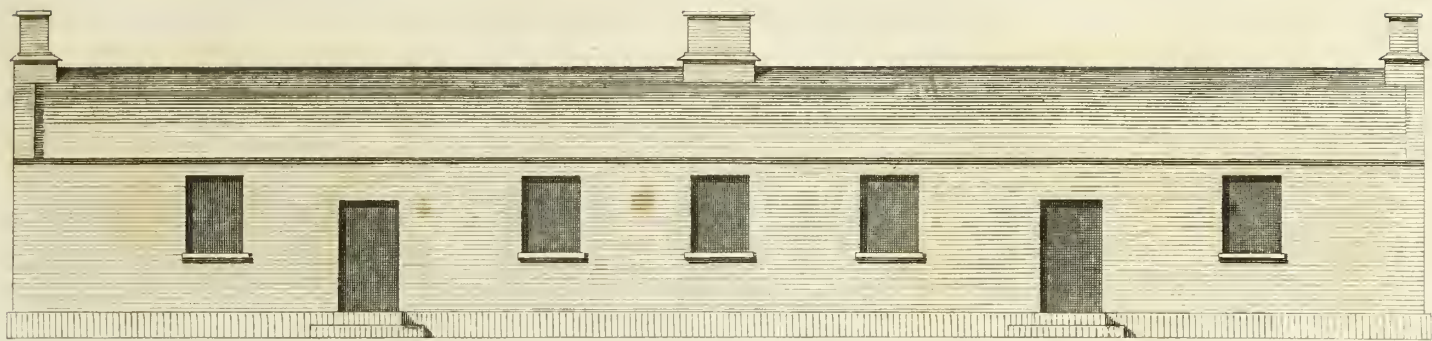


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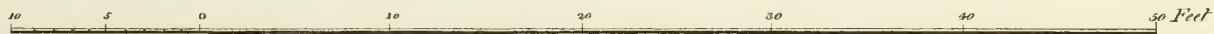
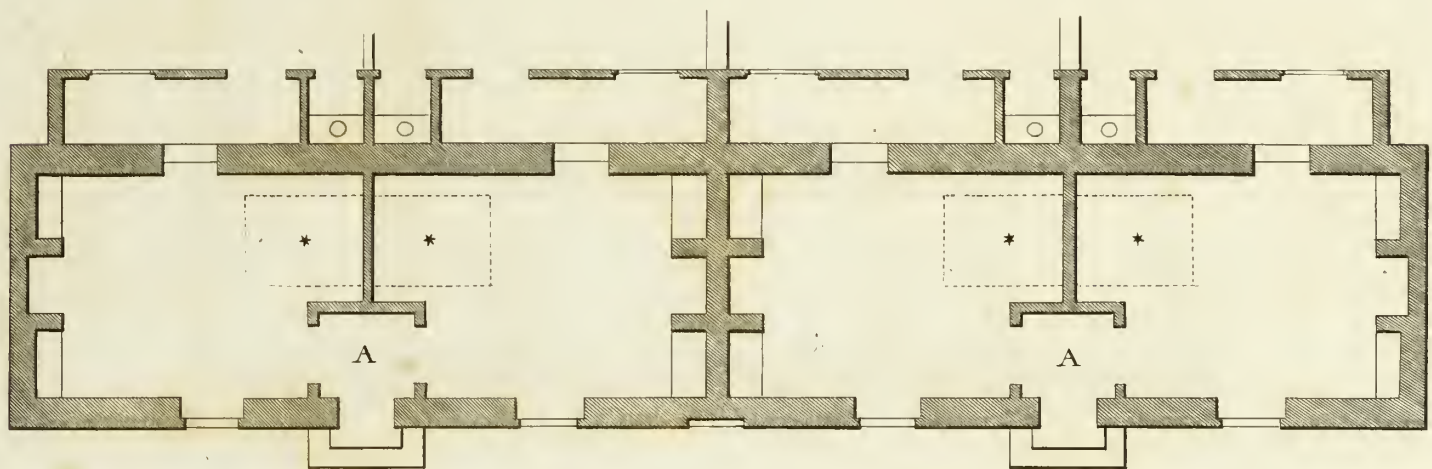


N^o 3.

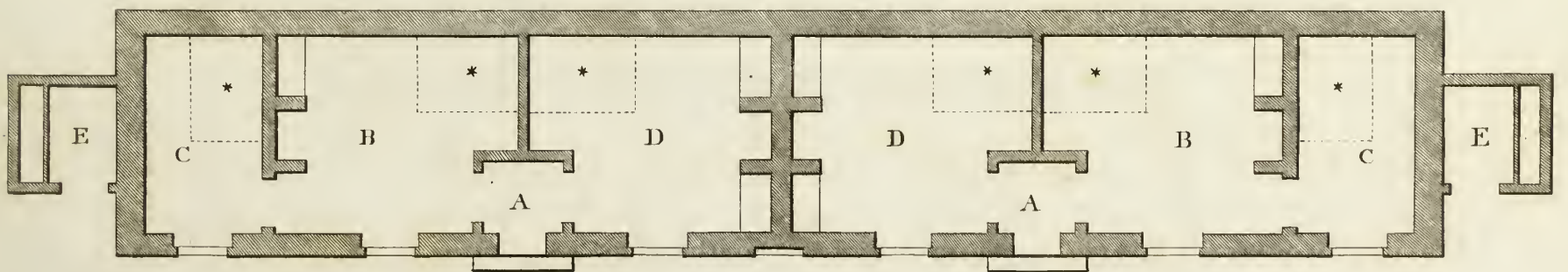


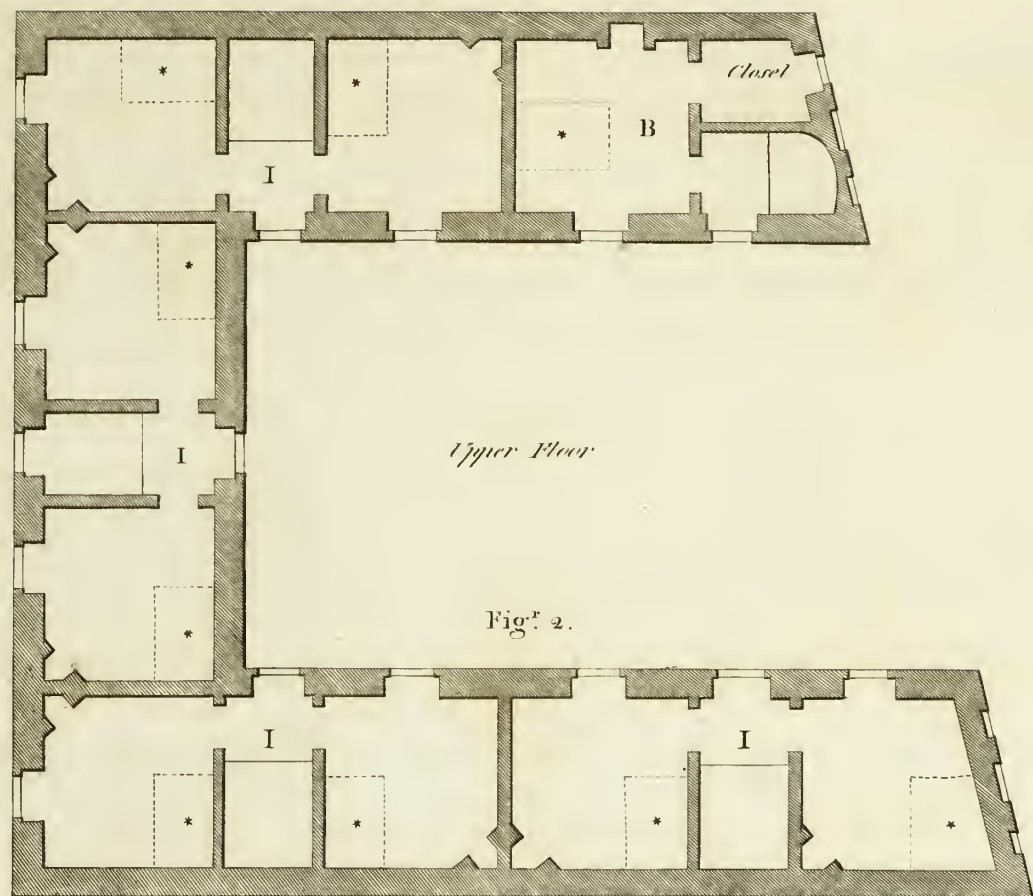


N^o 1.

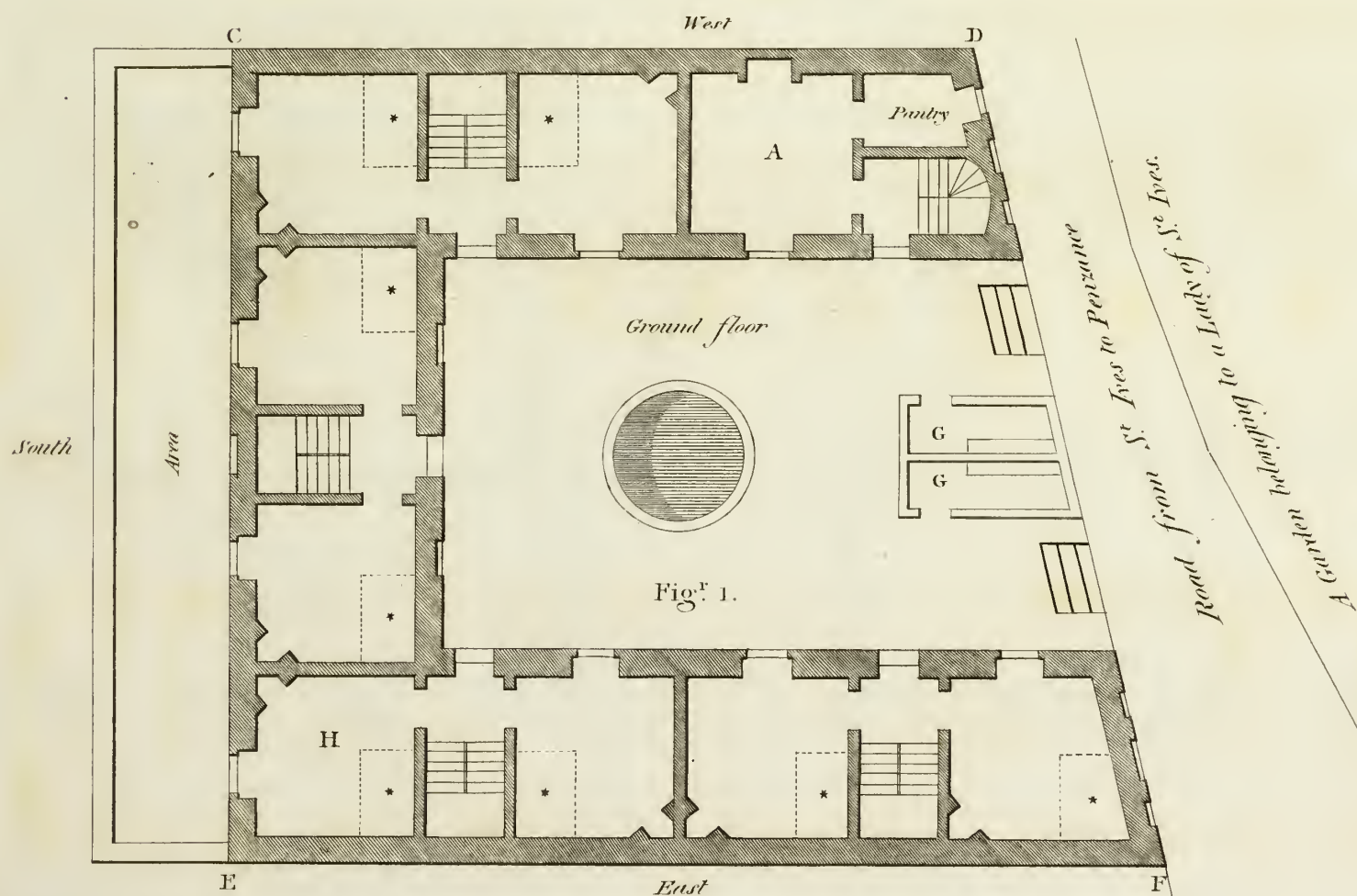


N^o 2.



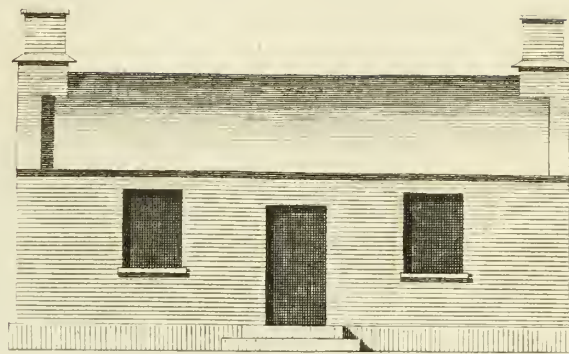


10 5 0 10 20 30 40 50 Feet

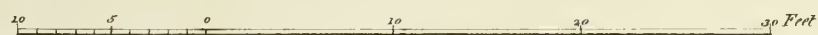
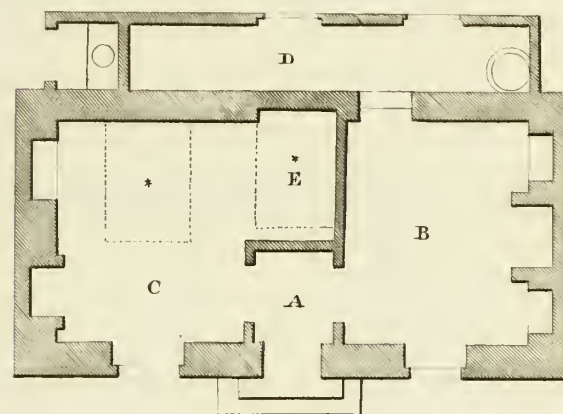
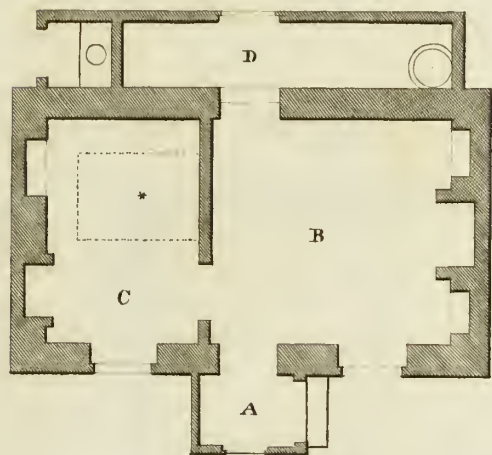




N^o 1.



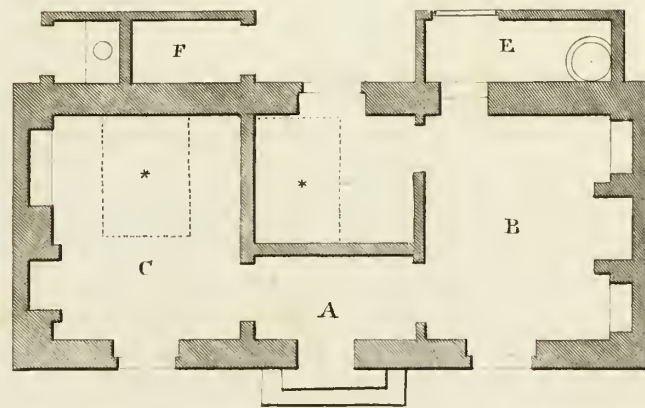
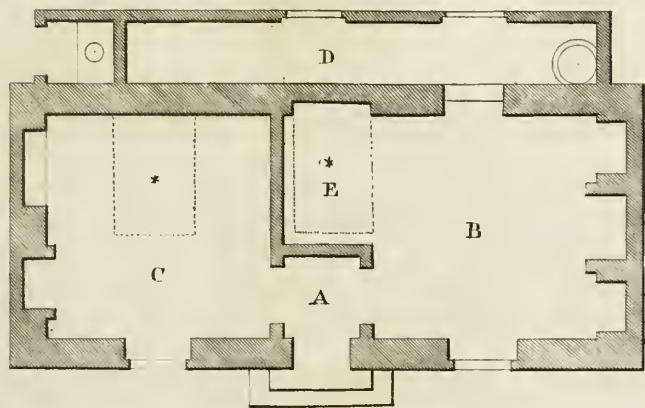
N^o 2.



N^o 3.

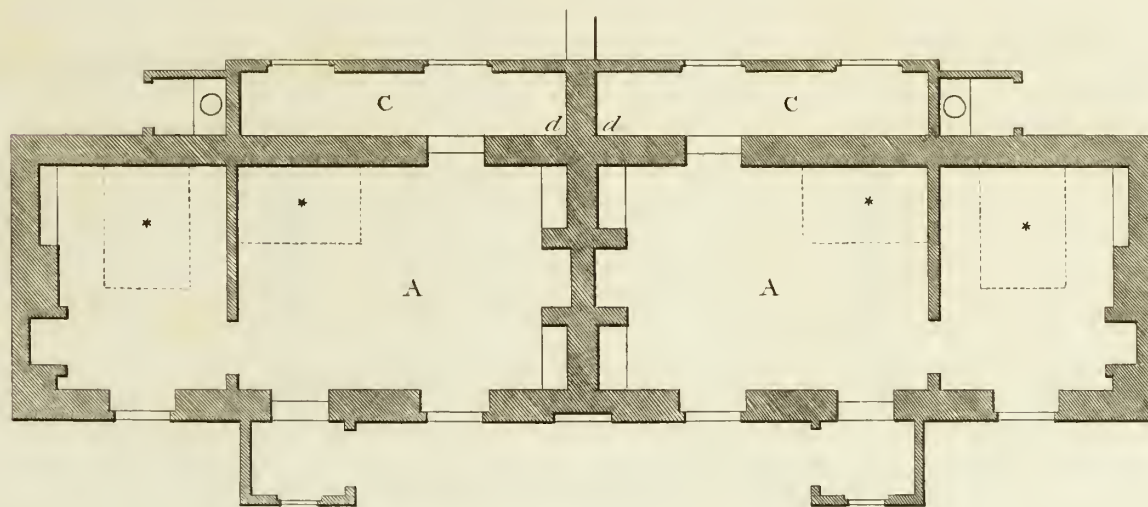


N^o 4.





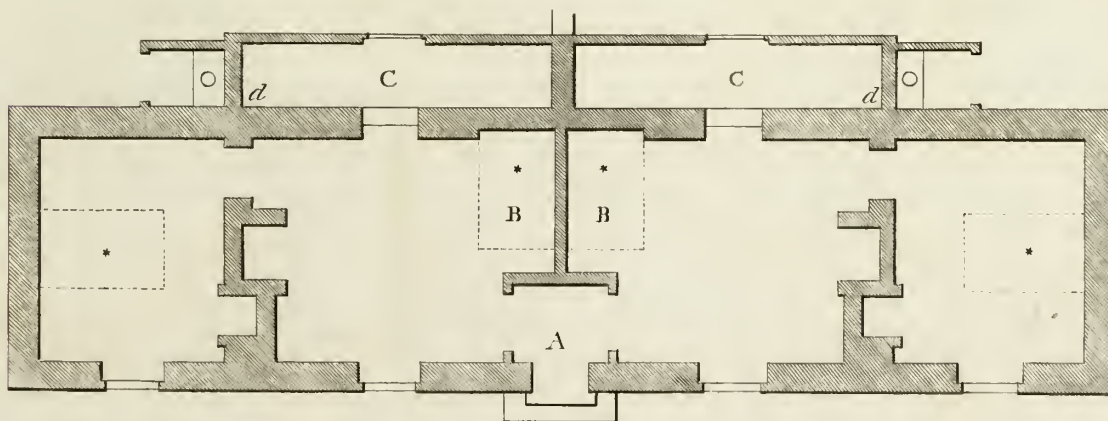
N^o 1

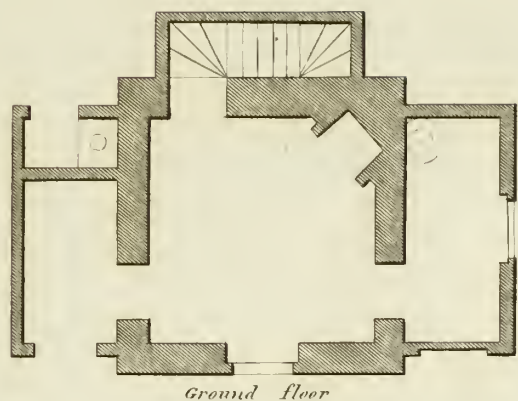


10 20 30 feet

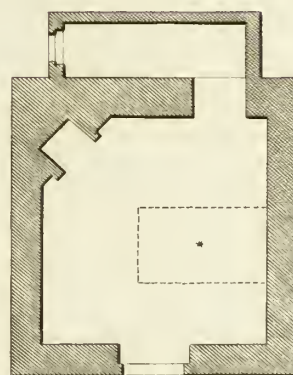


N^o 2



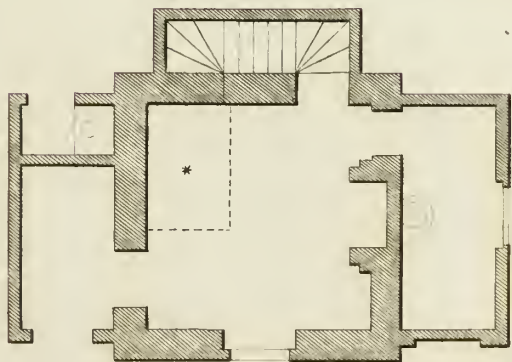
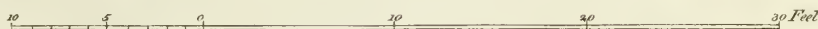


Ground floor

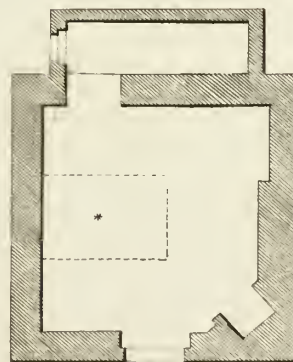


Chamber floor

N^o 1.

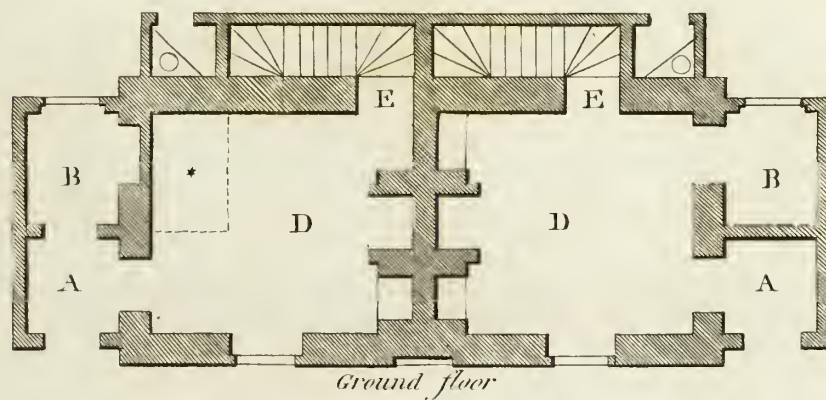
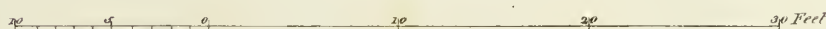
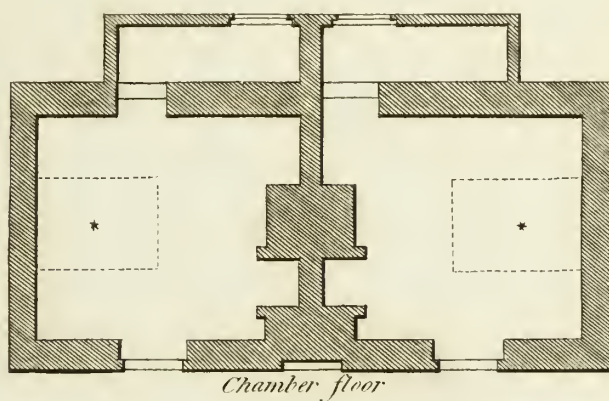
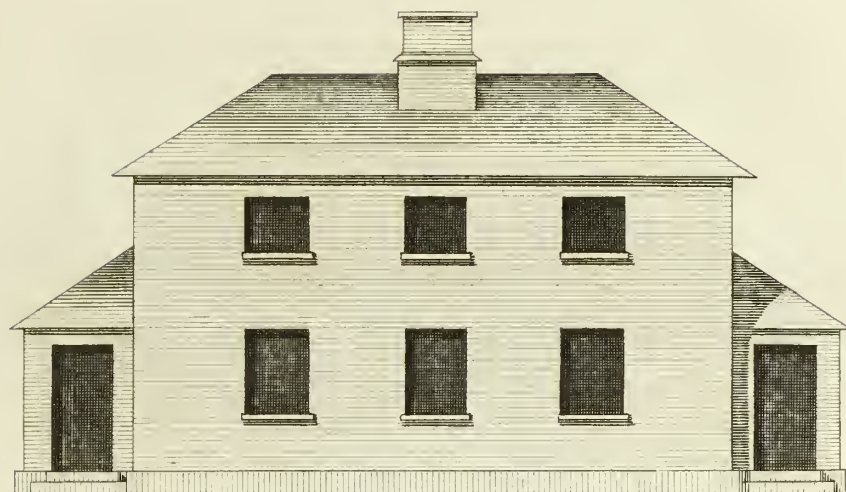


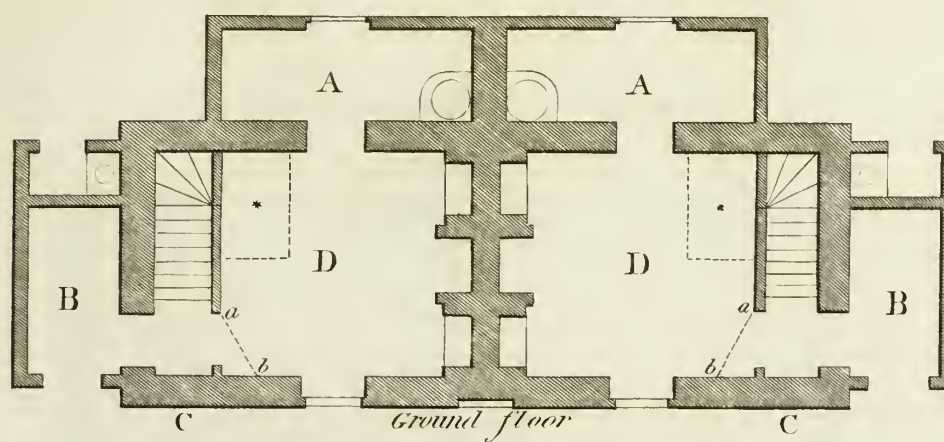
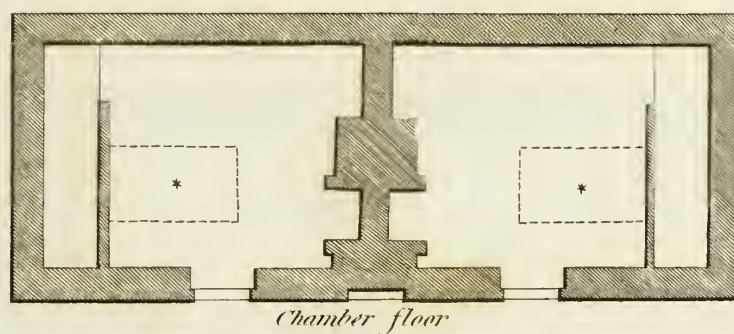
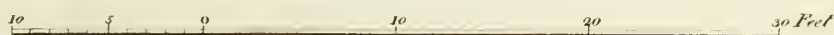
Ground floor



Chamber floor

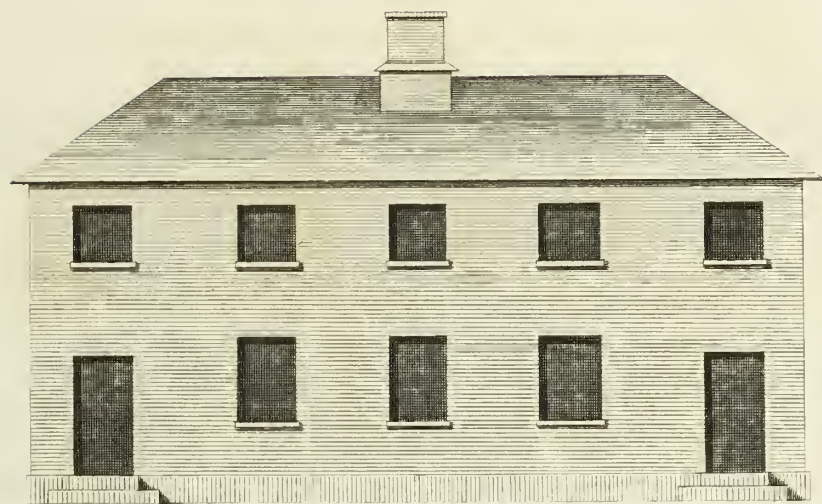
N^o 2.



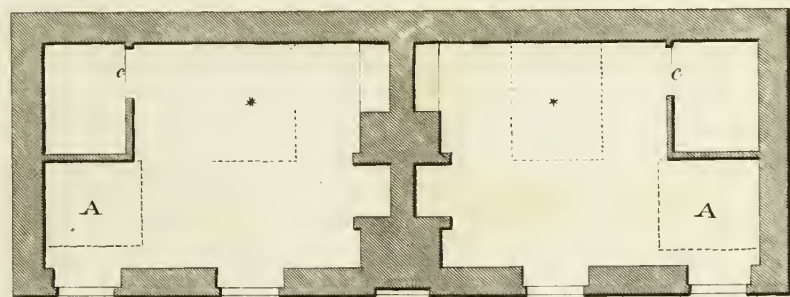


Engraved at the expense of John Wood, Architect, after his own original designs and published by him Jun^y 1st 1781

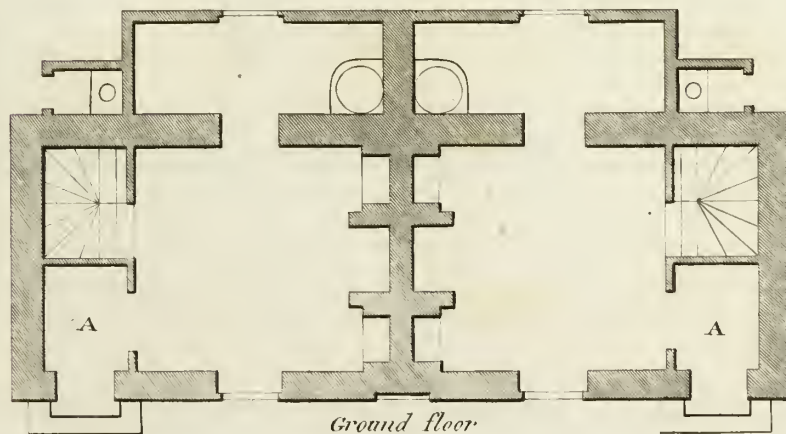
P. Begbie Sculp^t.



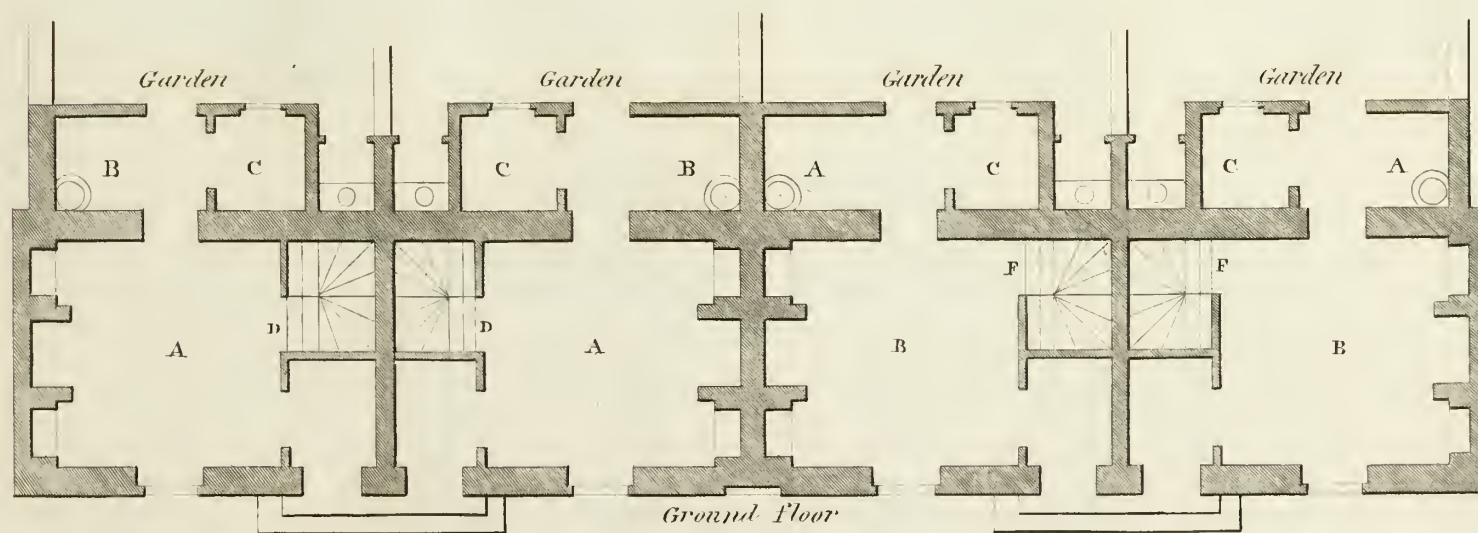
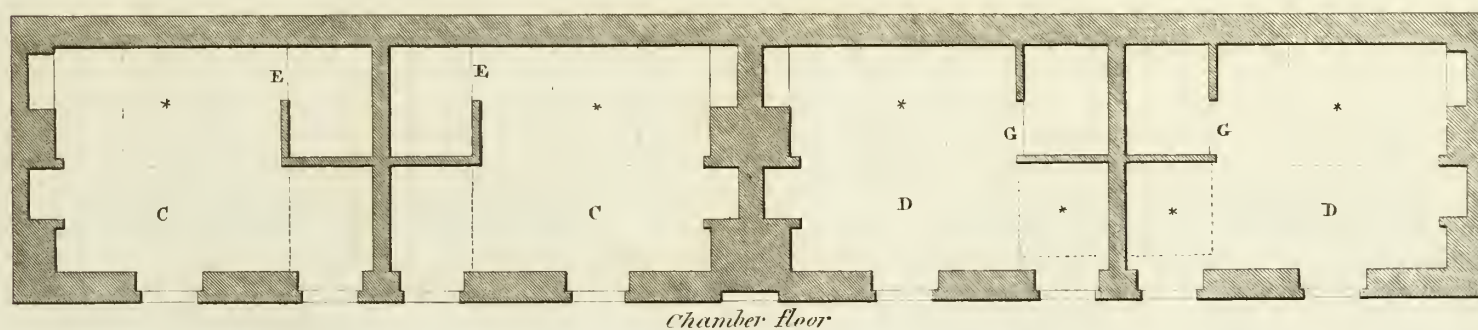
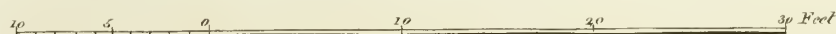
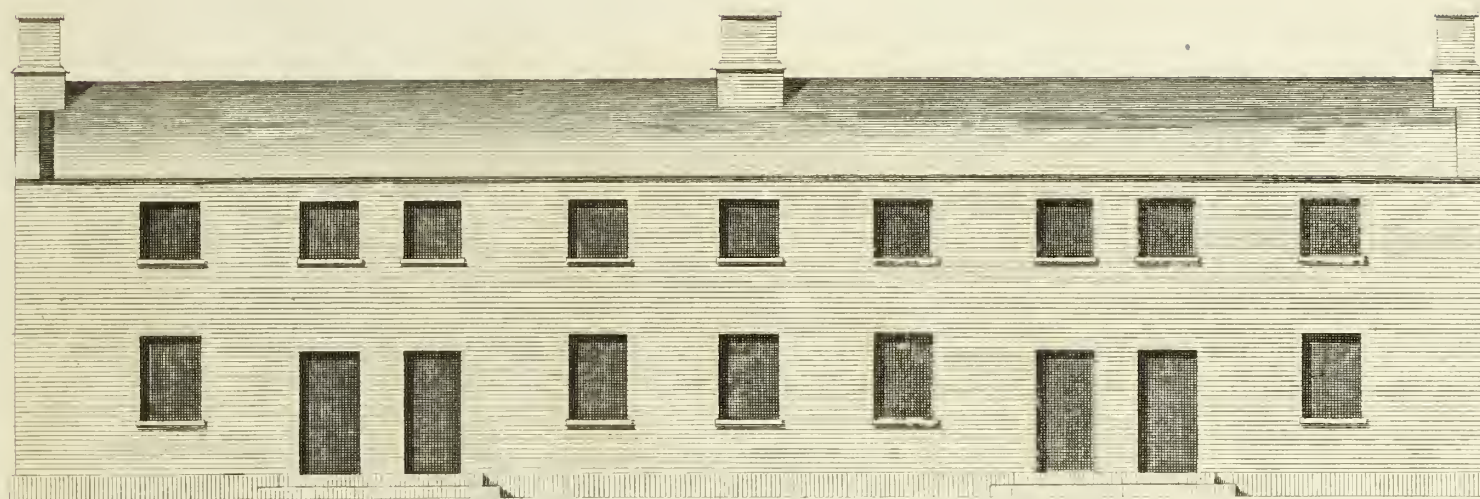
10 5 0 20 30 Feet

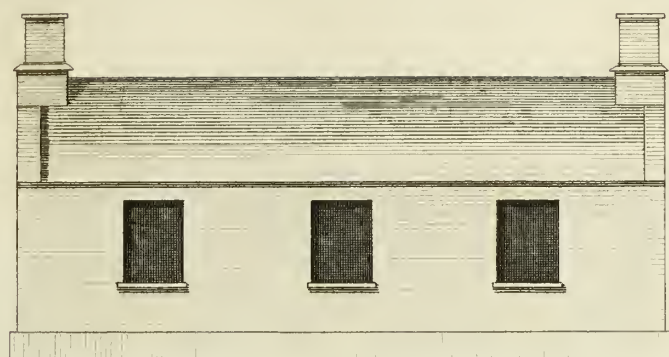


Chamber floor



Ground floor



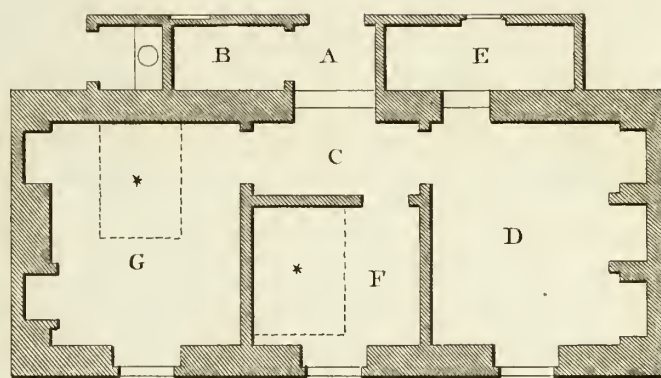


South Front

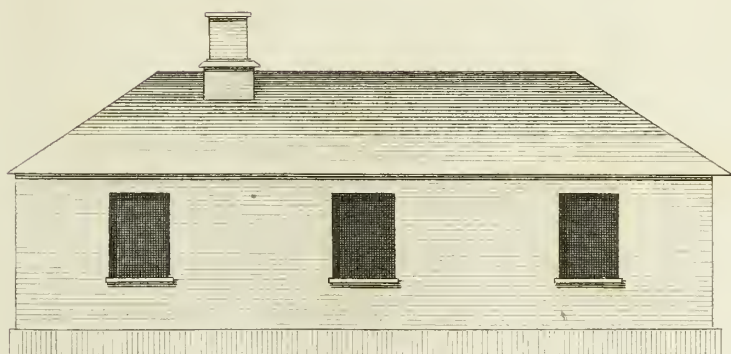


North Front

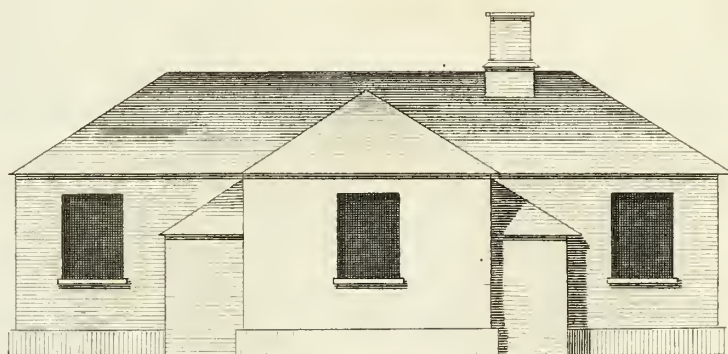
N^o 1



South

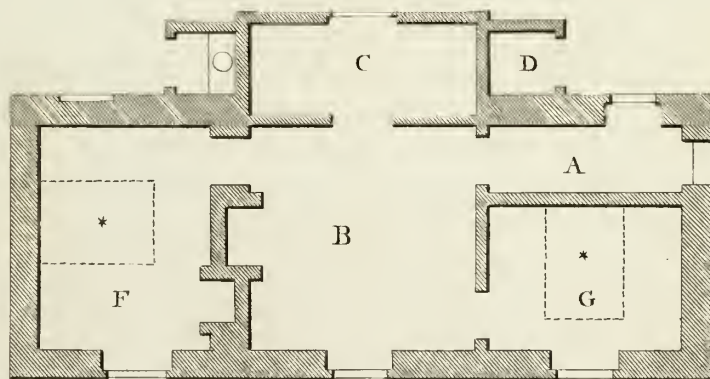


South Front

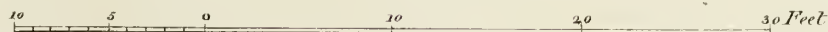
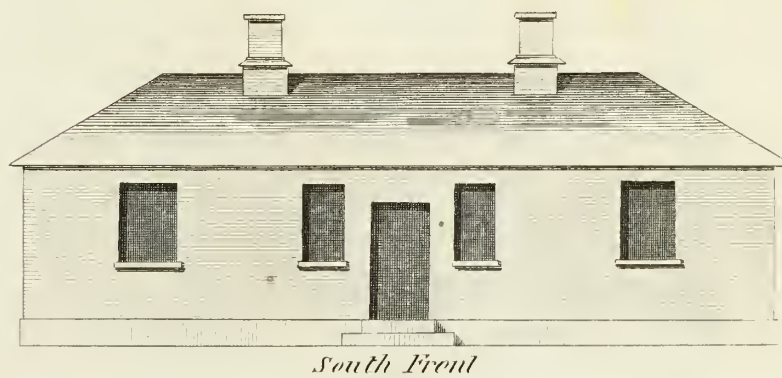
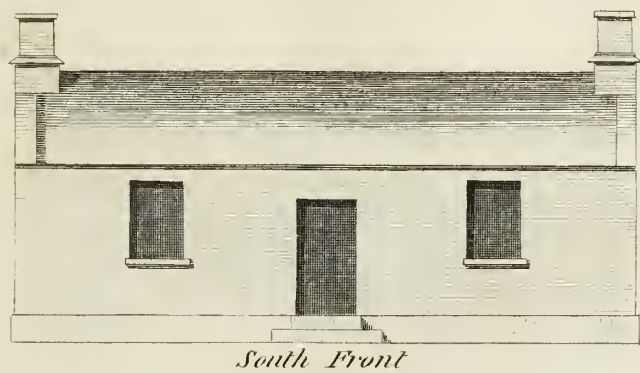
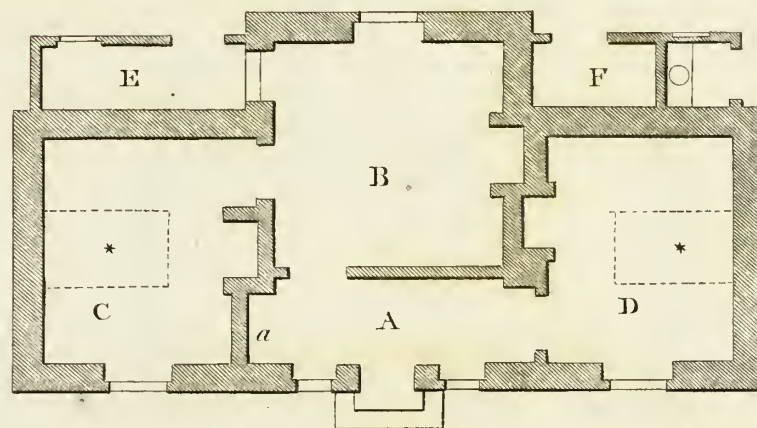
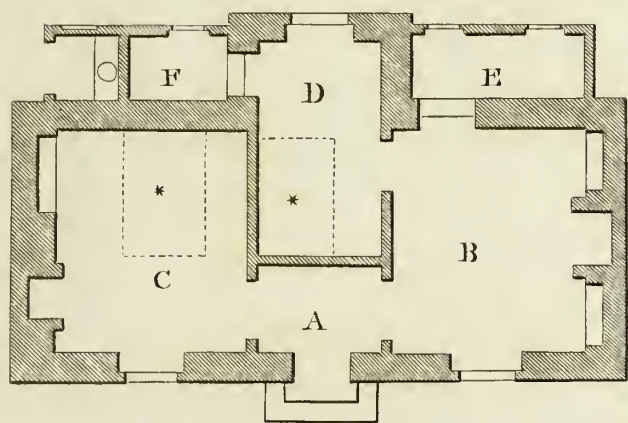
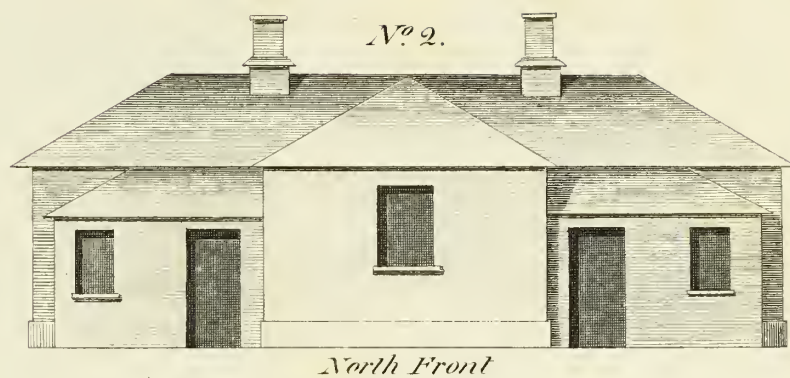
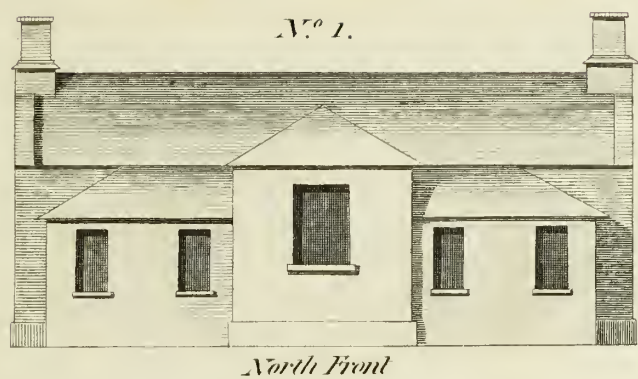


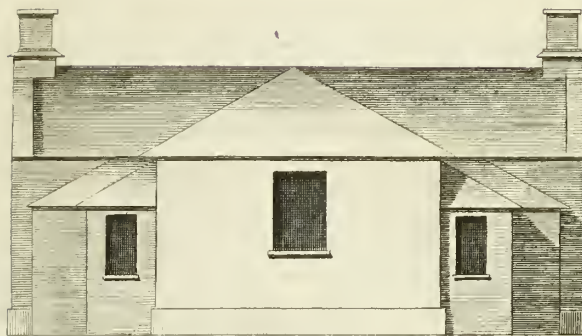
North Front

N^o 2

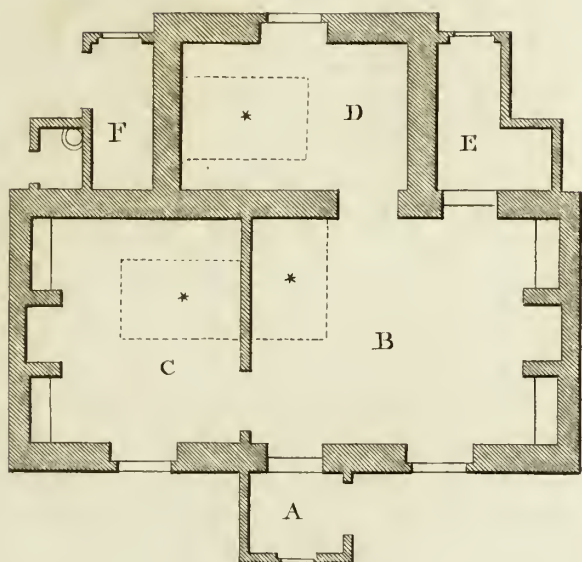


South

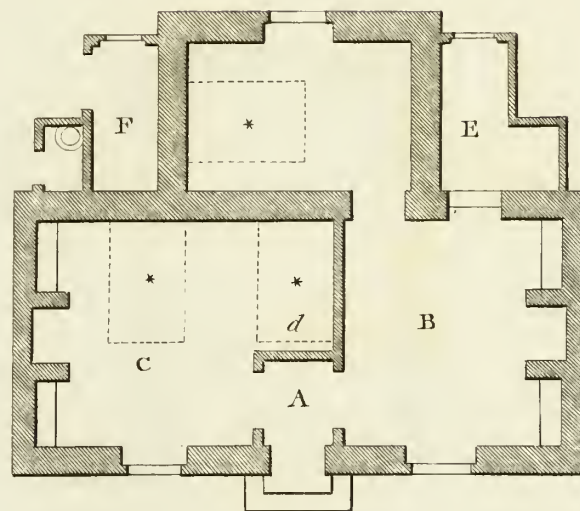




North Front both to N° 1 and to N° 2



N° 1.



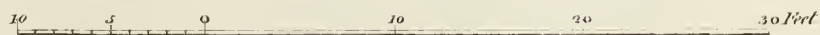
N° 2.



South Front

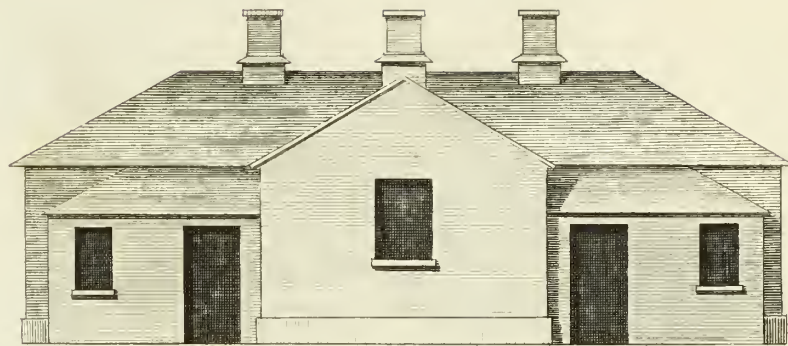


South Front

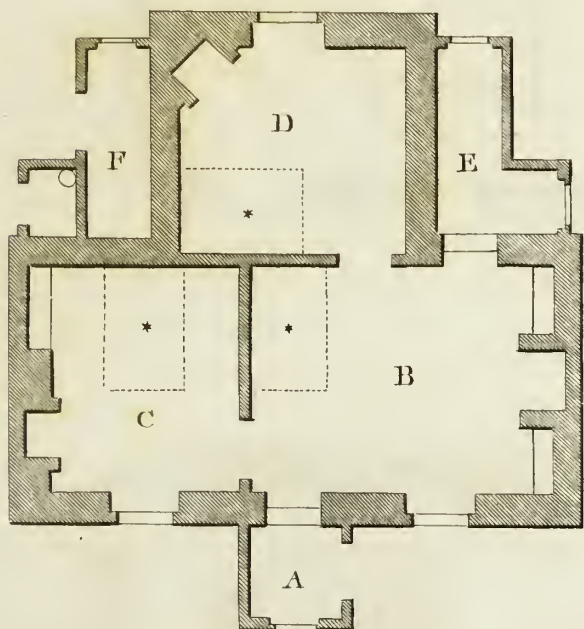




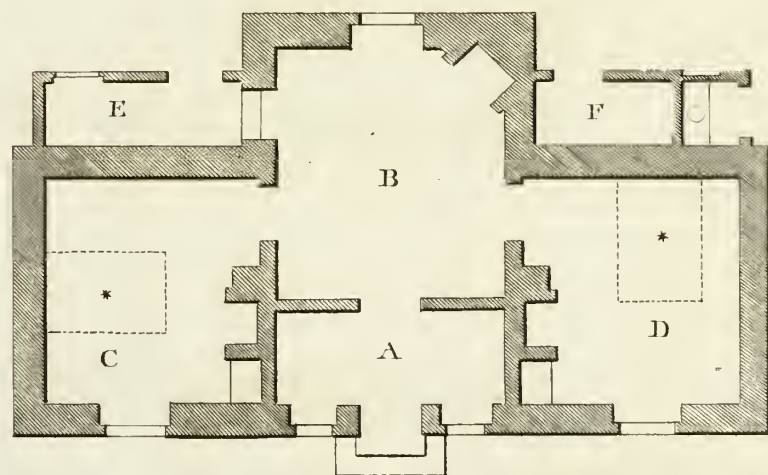
North Front of N°1 and N°2.



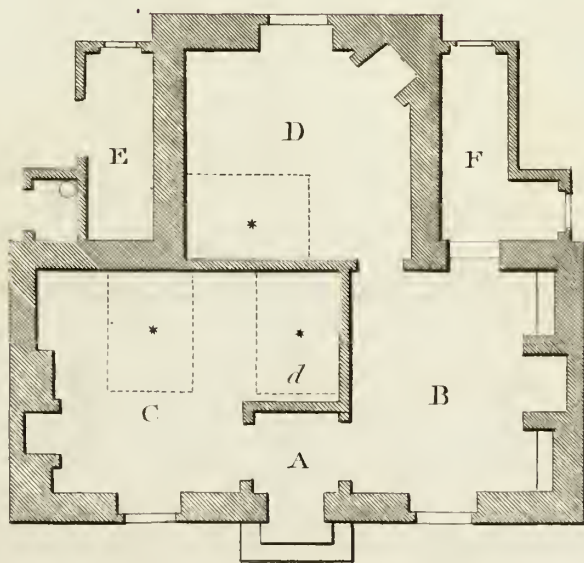
North Front of N°3.



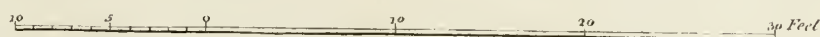
N°1.



N°3.

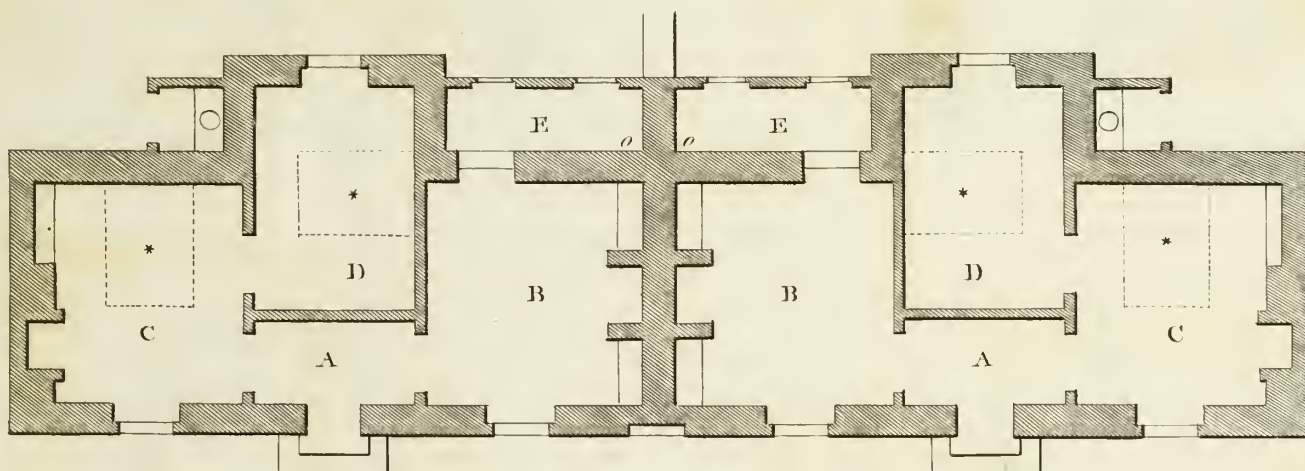


N°2.

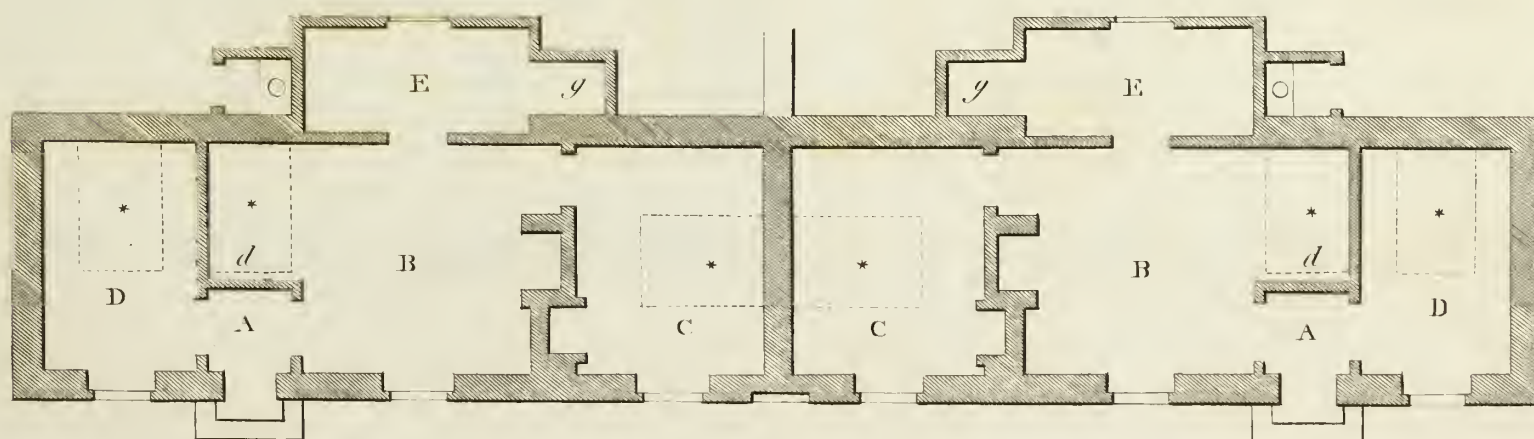




N^o 1.



N^o 2.

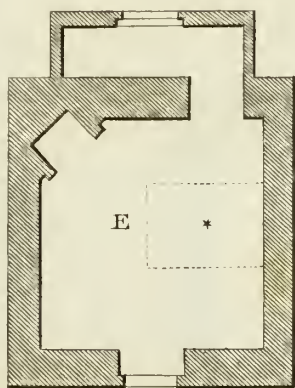


10 5 0 20 20 30 Feet

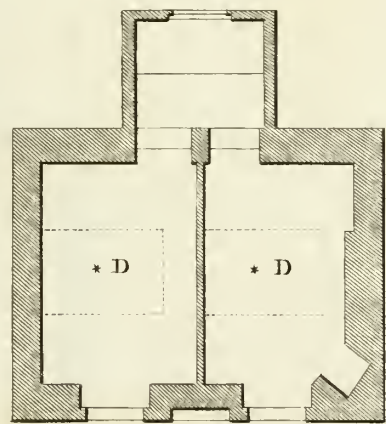


N^o 1

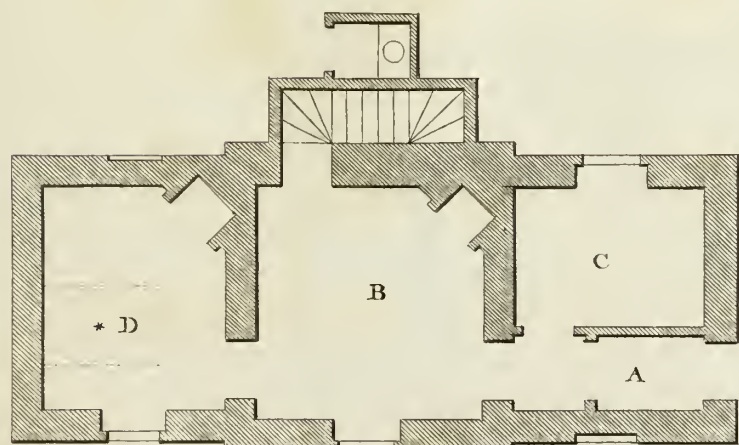
N^o 2



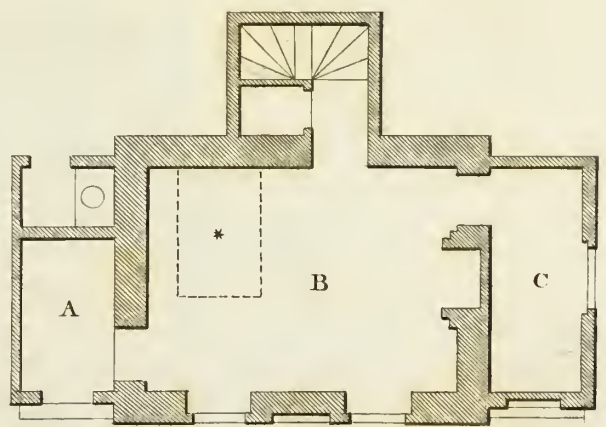
Chamber floor



Chamber floor



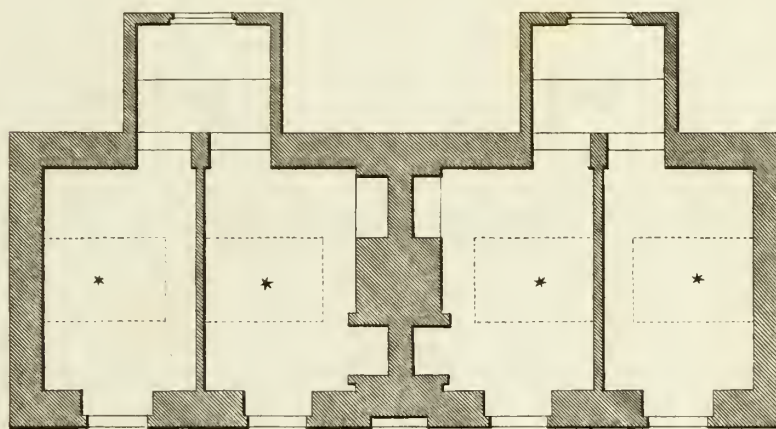
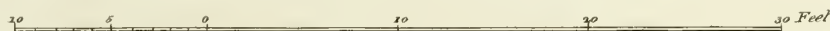
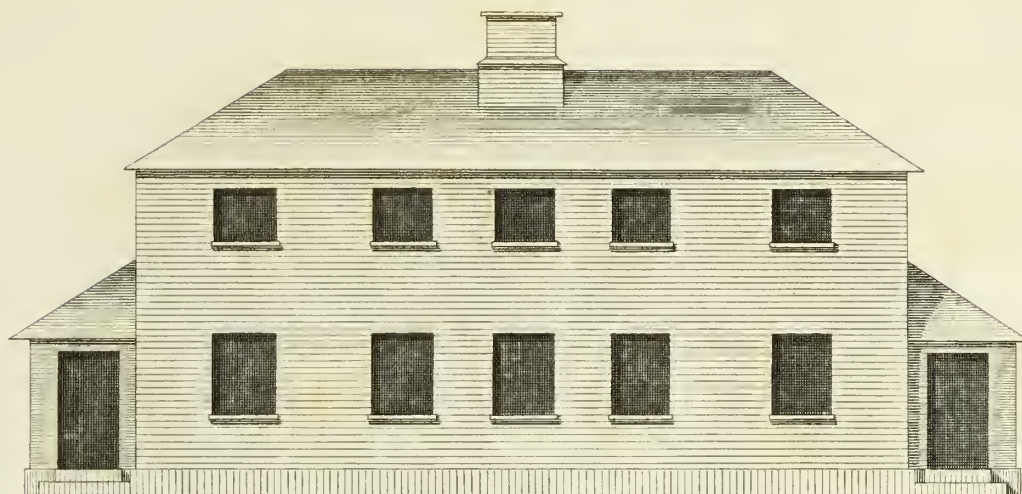
Ground floor



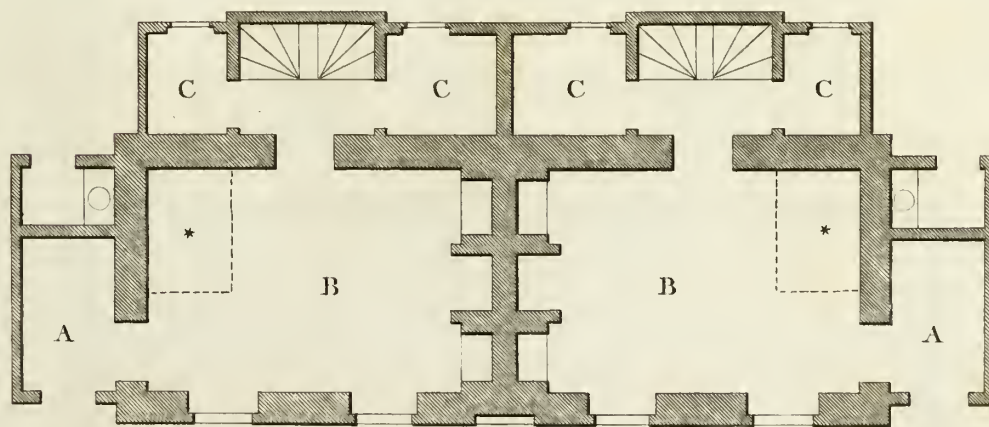
Ground floor

Engraved at the expence of John Wood, Architect, after his own original designs and published by him Jan 31st 1782

P Begbie Sculp.^t

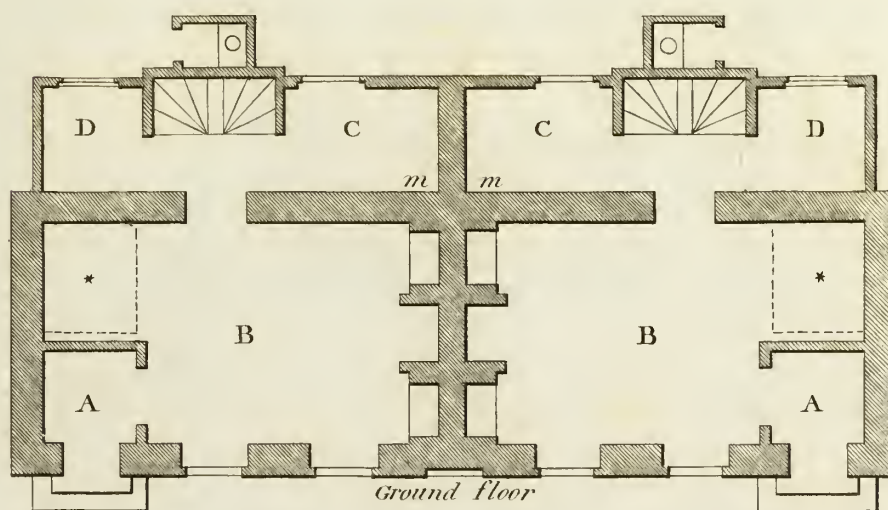
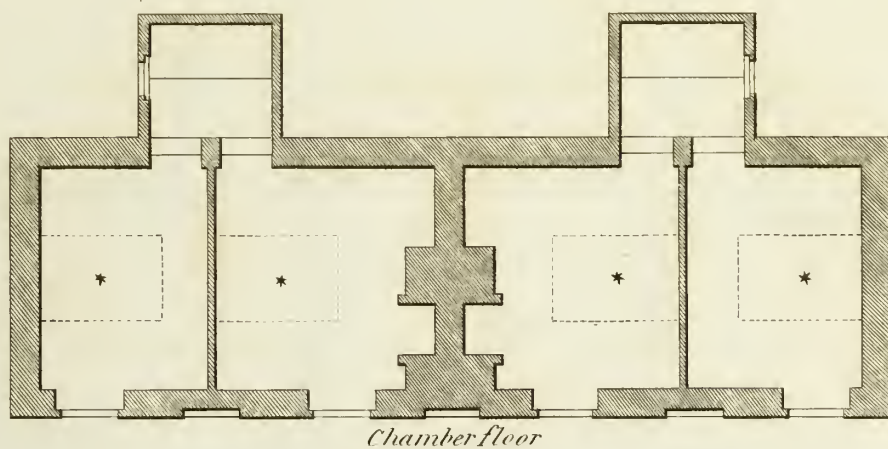
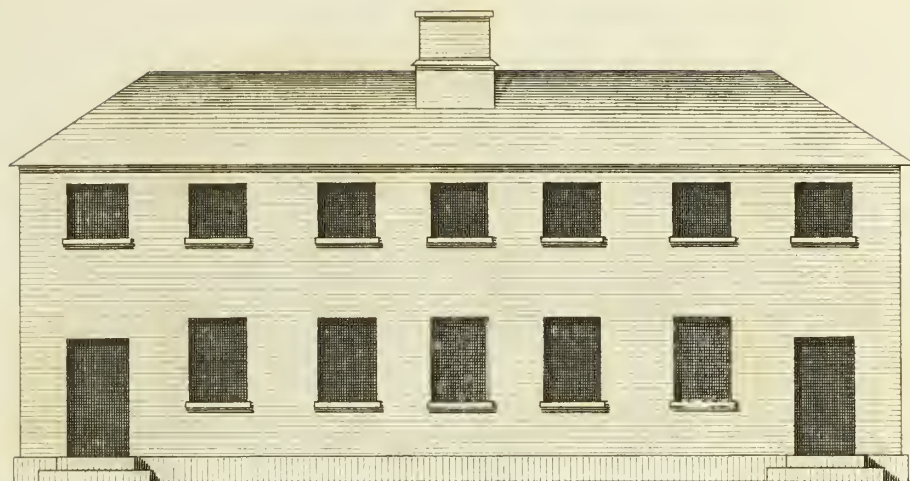


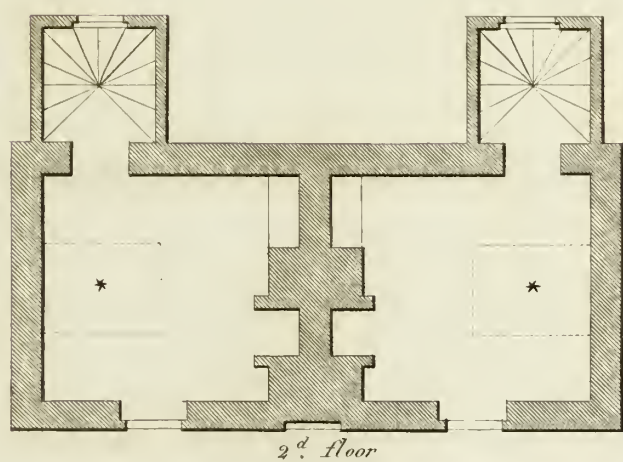
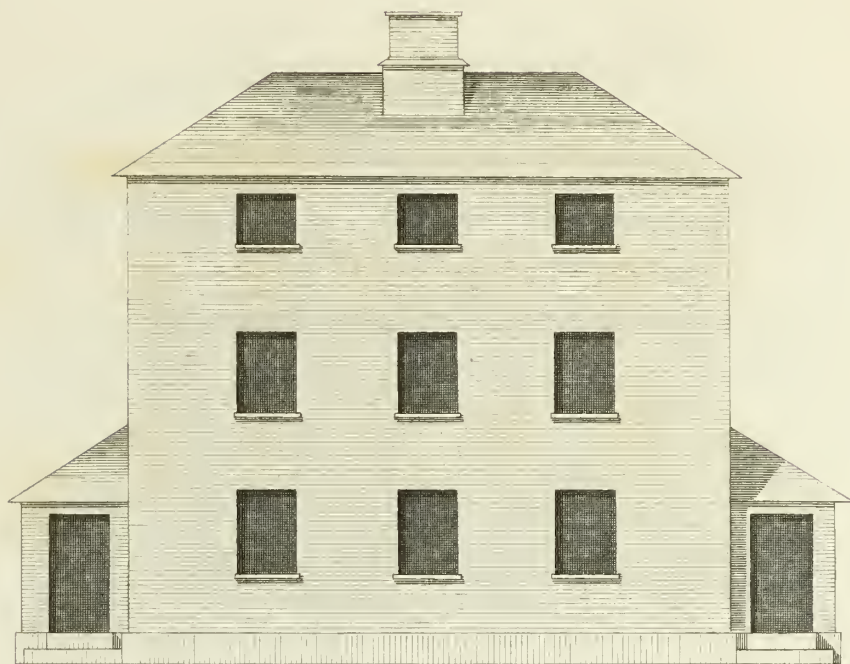
Chamber floor



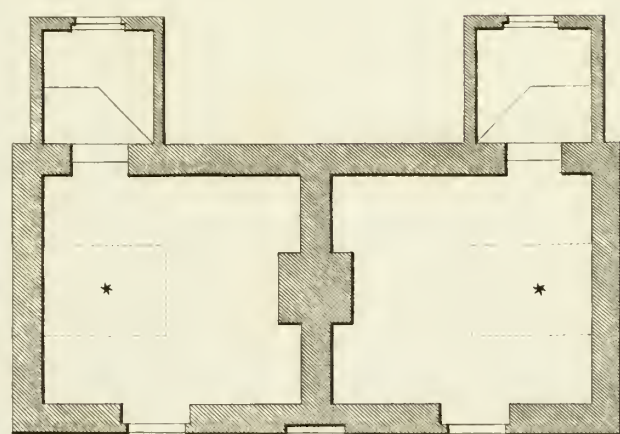
Ground floor

Engraved at the expence of John Wood, Architect, after his own original designs and published by him Jan^y 1st 1781
P. Begbie Sculp^r



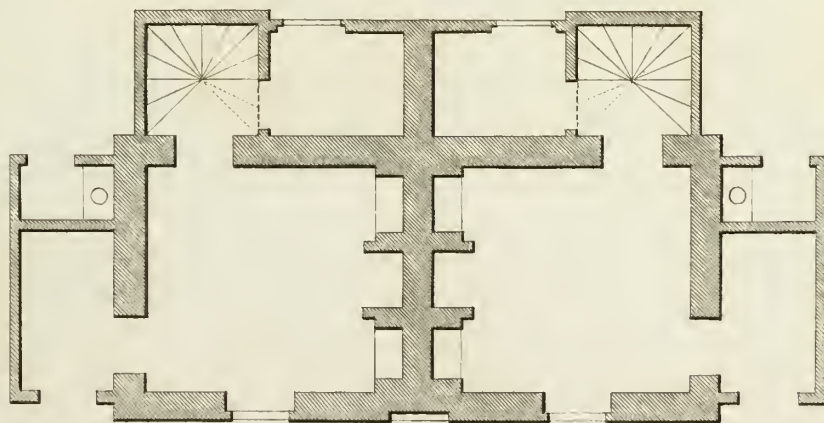


2^d floor



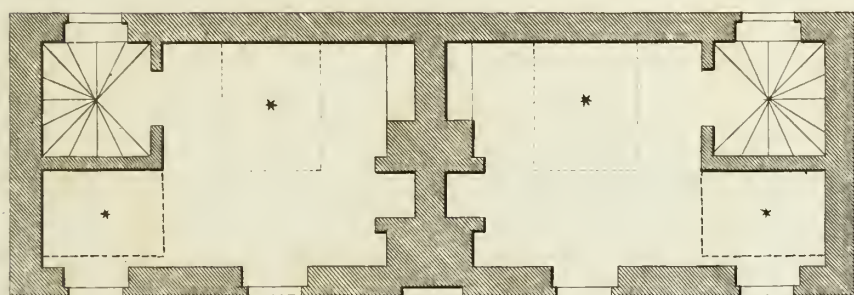
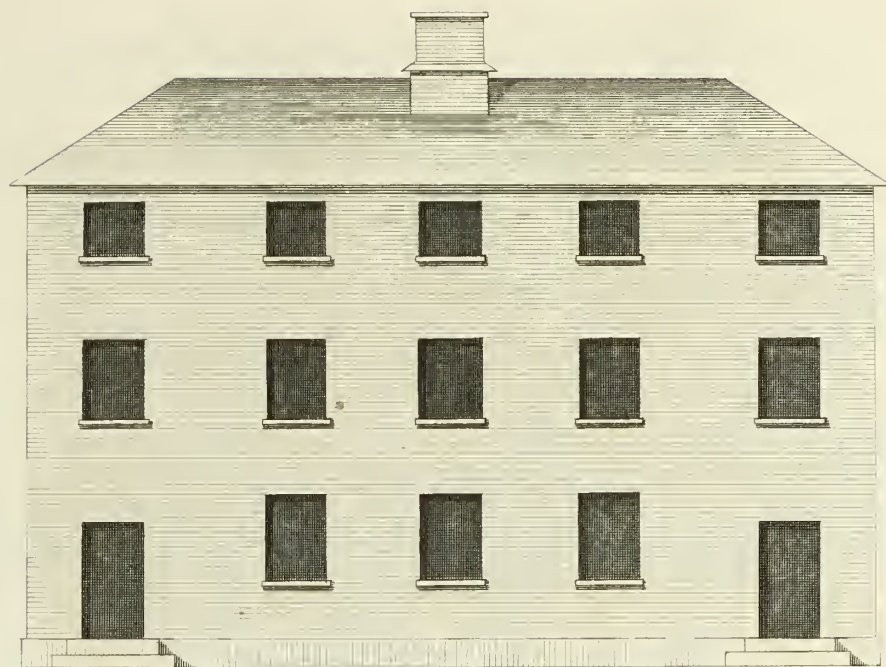
Upper floor

10 5 0 10 20 30 Feet

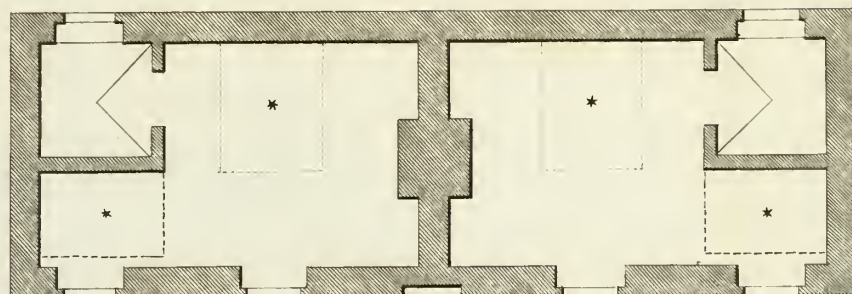


Ground floor

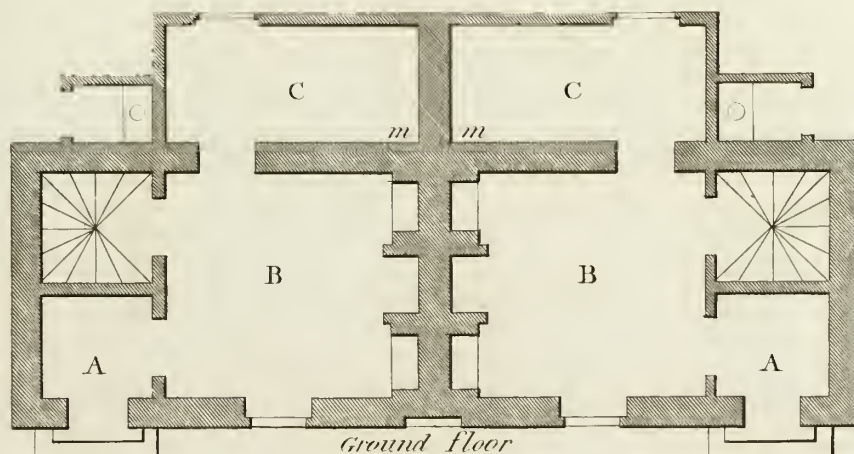
Engraved at the expense of John Wood, Architect, after his own original designs and published by him Jan^y 1st 1841
 P. Beggw. Sculp.



Second floor



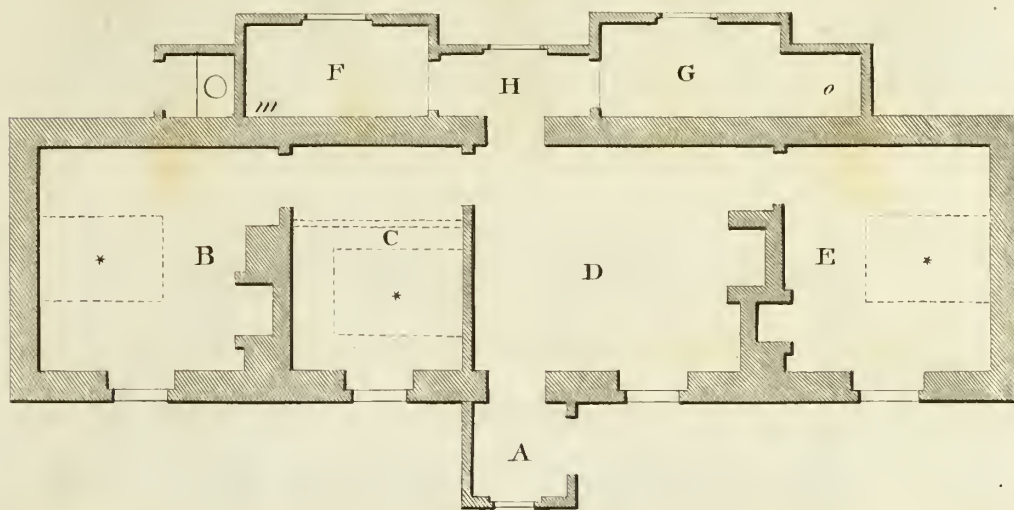
Upper floor



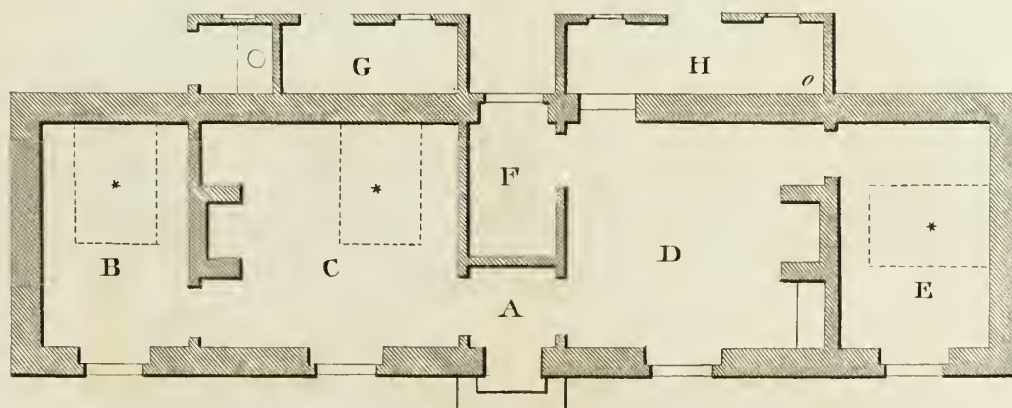
Ground floor



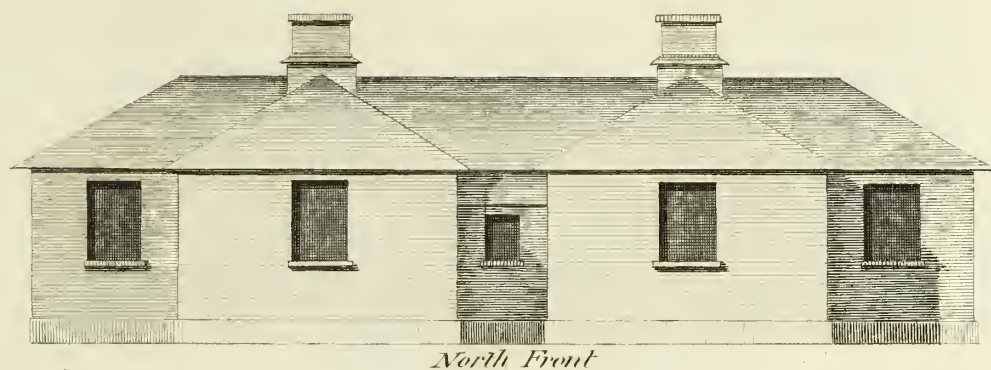
N^o 1.



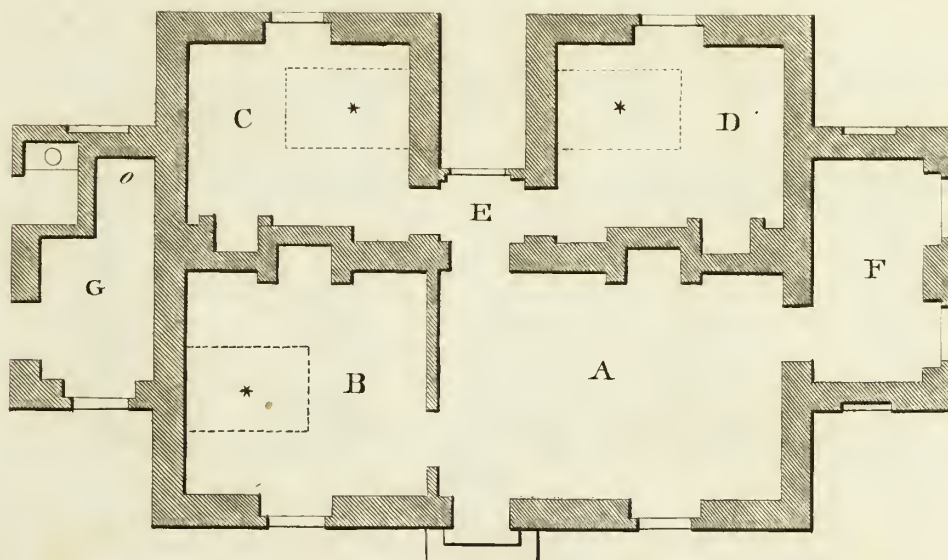
N^o 2.



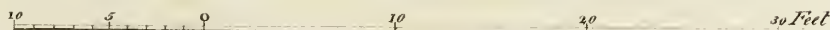
10 5 0 10 20 30 Feet



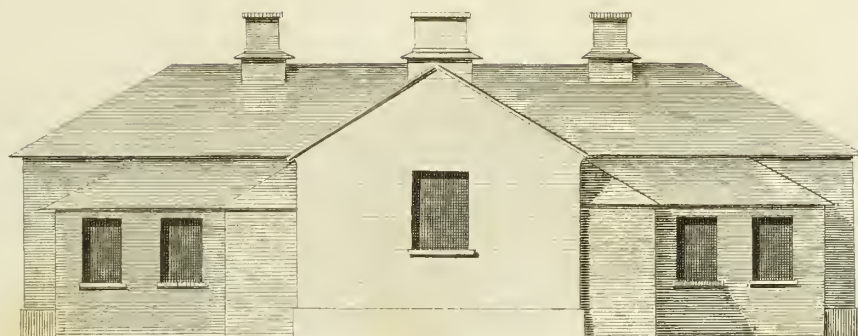
North Front



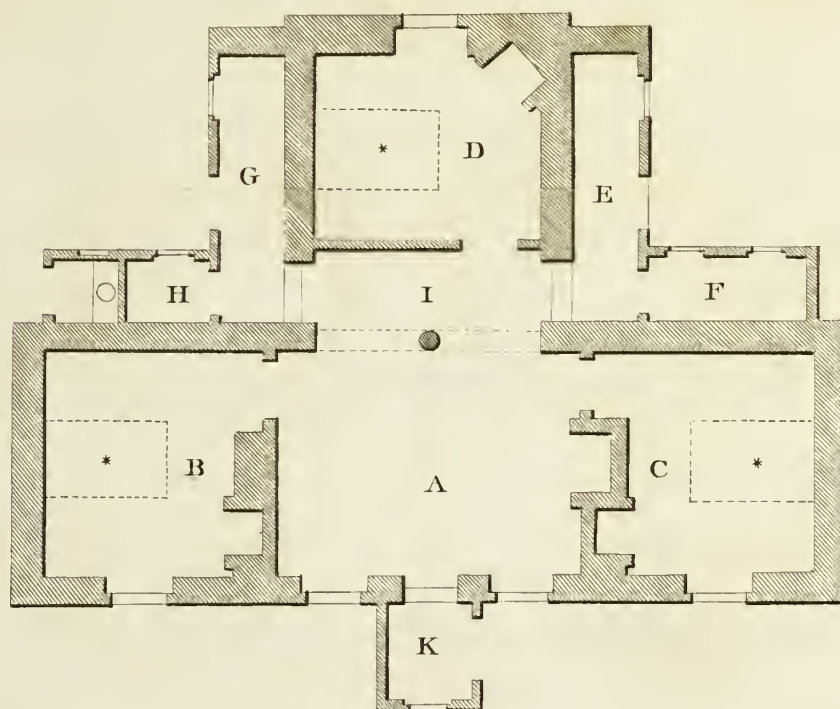
South Front



Engraved at the expense of John Wood, Architect, after his own original designs and published by him Jan^y 1st 1781
P. Begbie Sculp^r



North Front



South Front

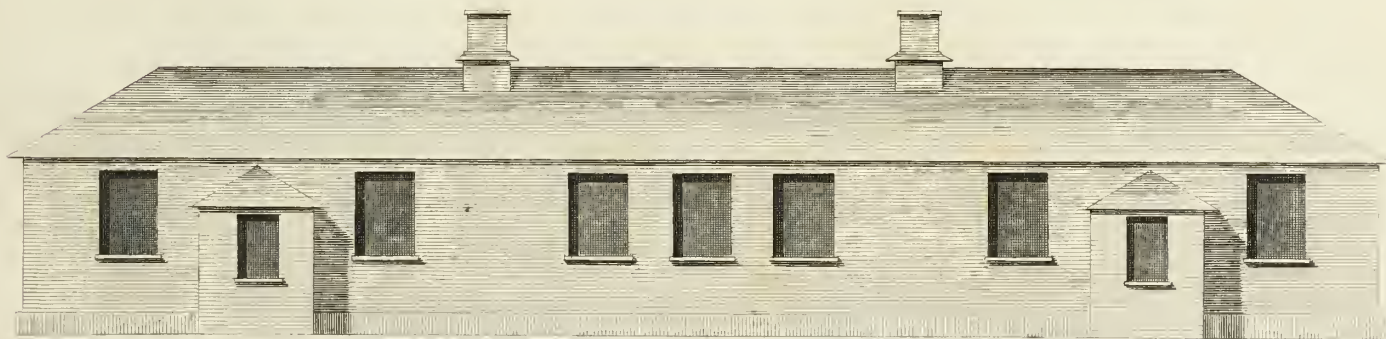
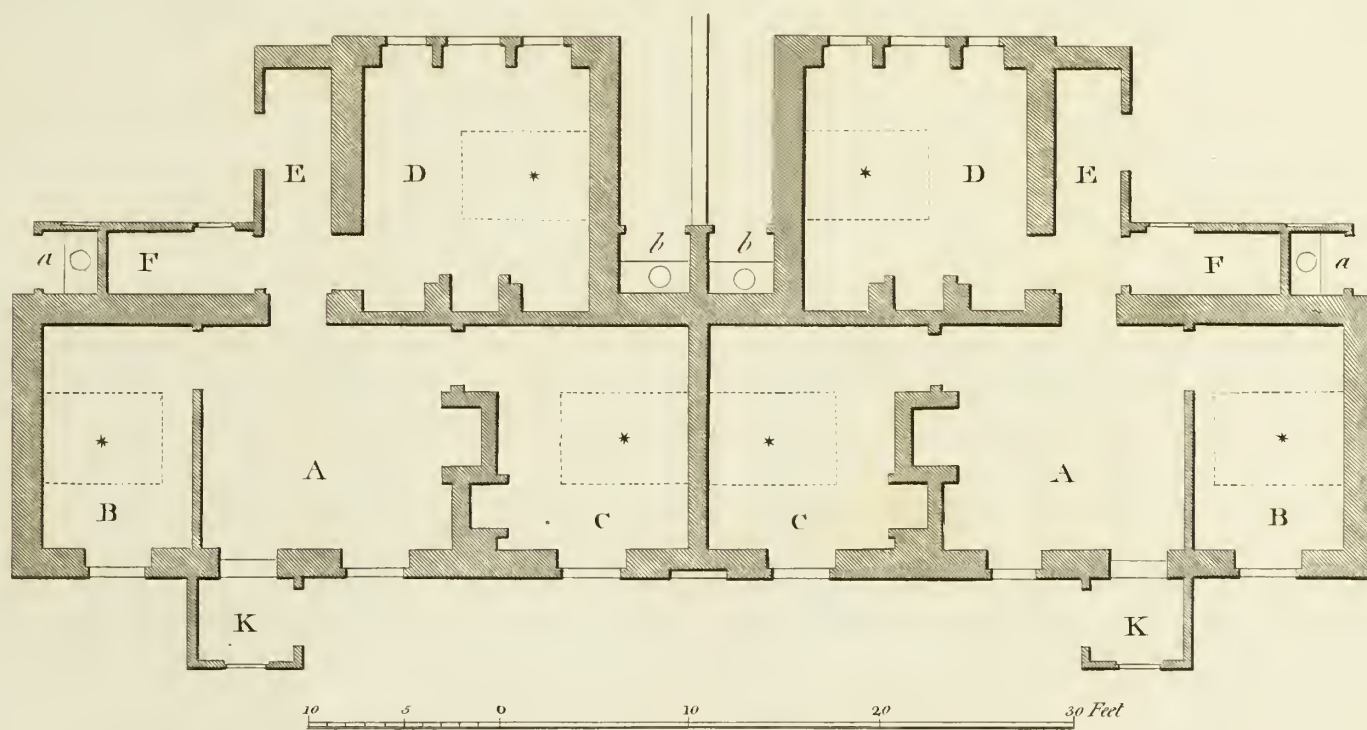
10 20 30 Feet

Engraved at the expence of John Wood, Architect, after his own original designs and published by him. Jan^y 1st 1781

P. Begbie Sculp^r



North Front



South Front

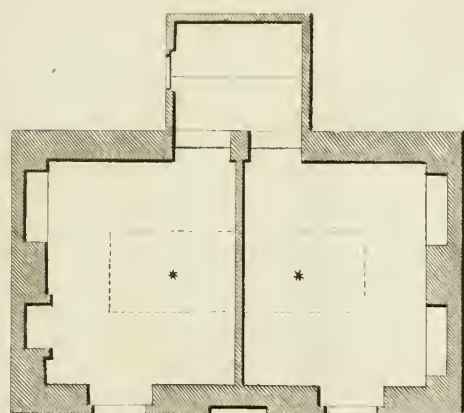
Engraved at the expense of John Wood, Architect, after his own original designs and published by him Jan^y 1st 1782
P. Begbie Sculp^r



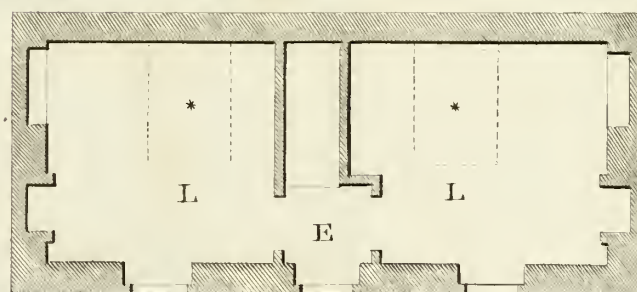
N^o 1.



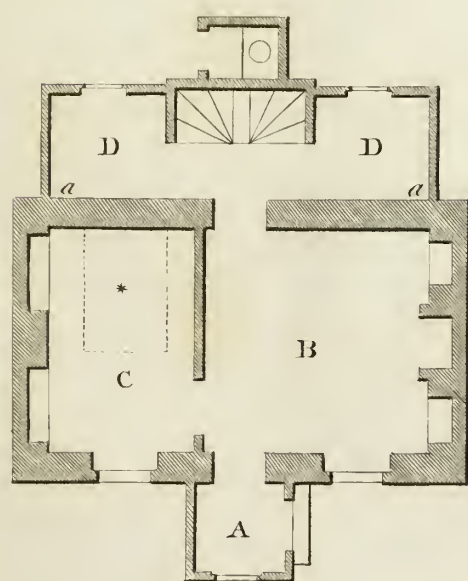
N^o 2.



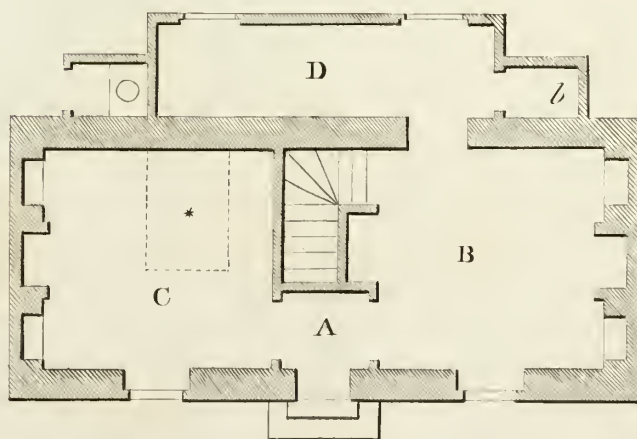
Chamber floor



Chamber floor



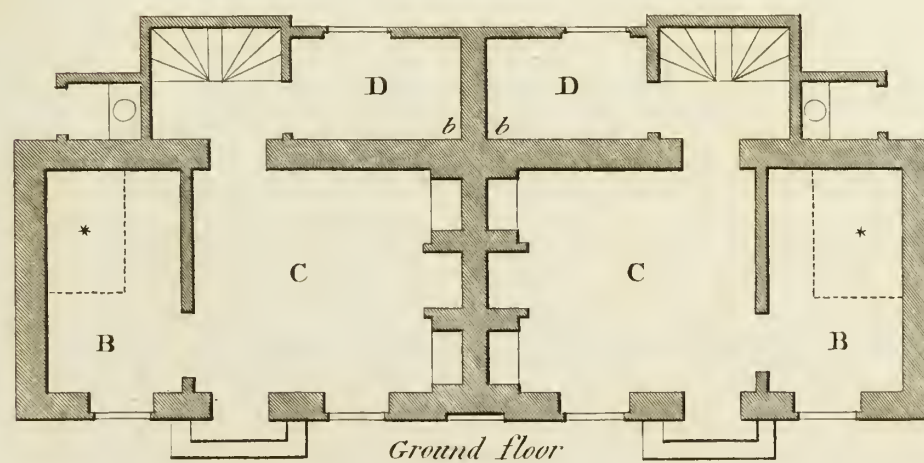
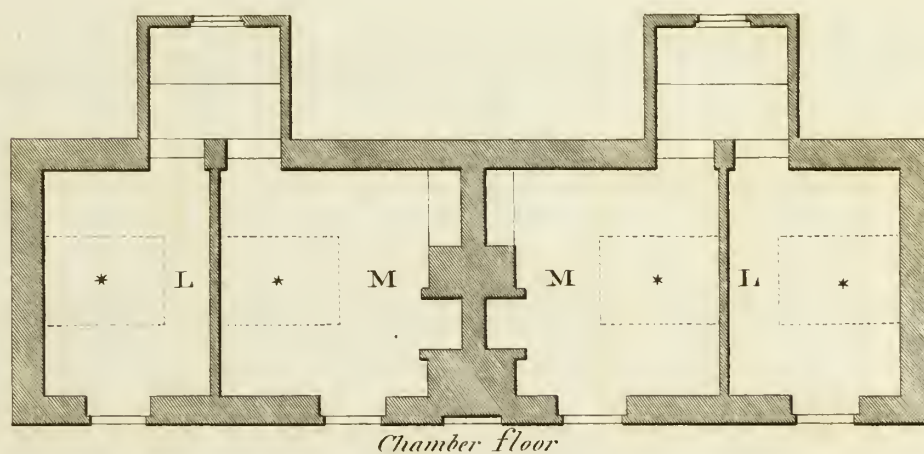
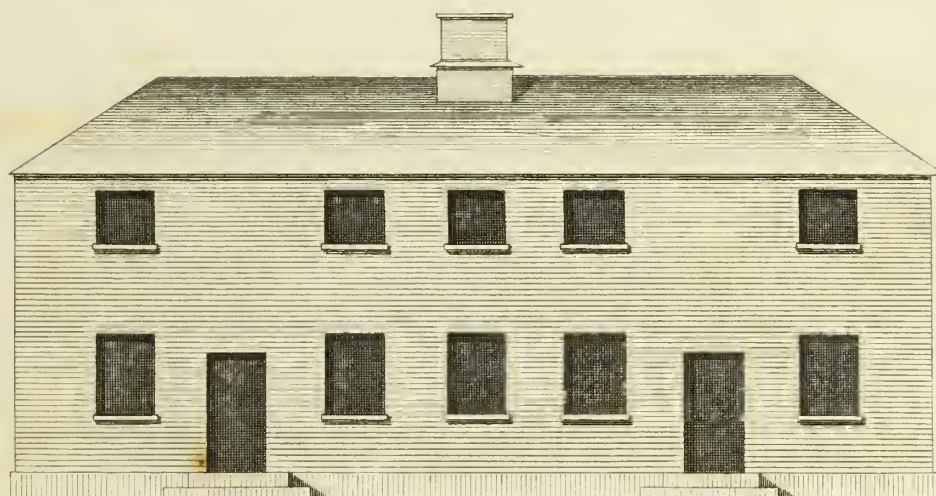
Ground floor

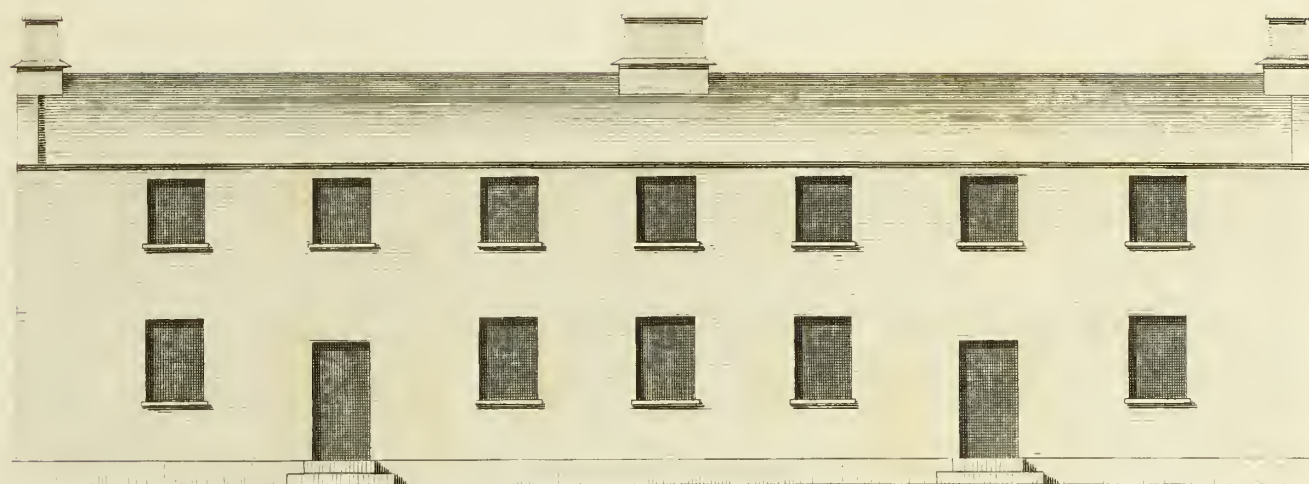


Ground floor

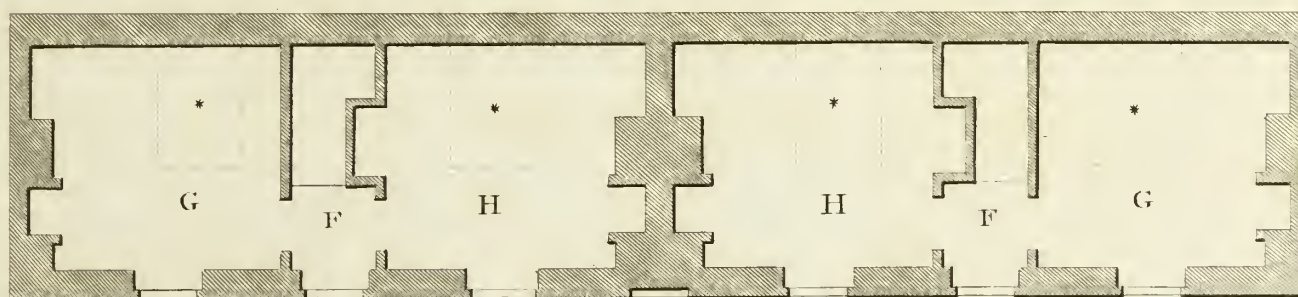
10 5 0 10 20 30 Feet



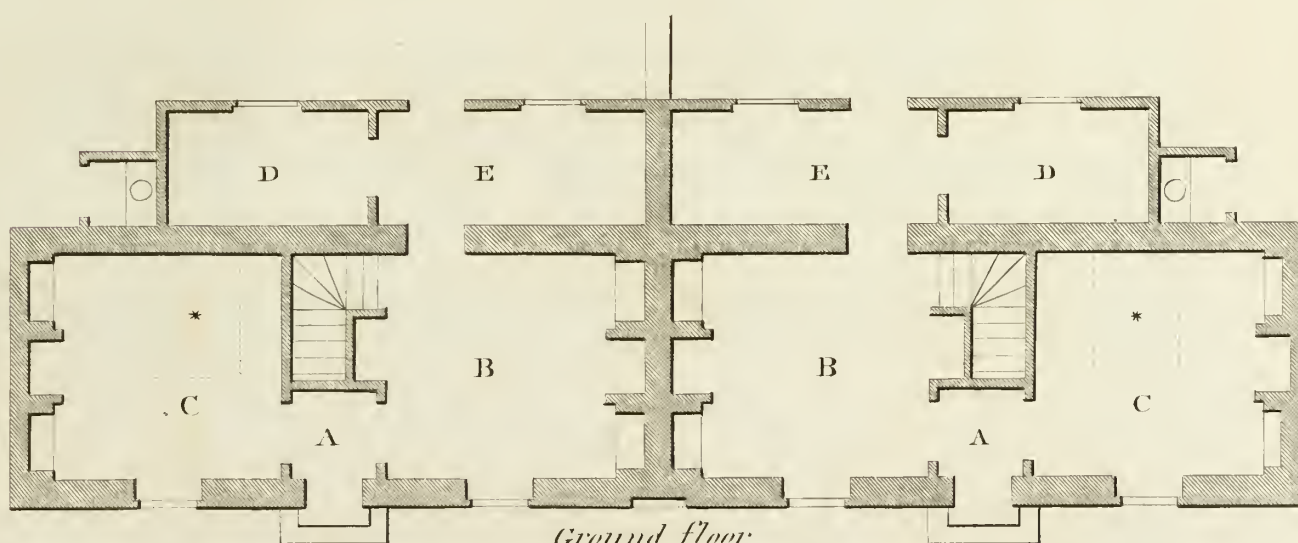




10 5 0 10 20 30 Feet



Chamber floor



Ground floor

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